JUGONNATH SUNKERSETT
PRESENTATION.

Extract from London Times dated 25th November 1969 pp

£. 90,000 for Audubon set

by GERALDINE KEEN
Sale Room Correspondent

Four volumes containing the 435 plates of Audubon's Birds of America were sold at Sotheby's yesterday for £. 90,000 to Mr. Kenneth Nebenzahl, a Chicago book dealer. Times have changed since in the early years of the nineteenth century John James Laforest Audubon, the American naturalist and artist, failed to interest any American publishers in his ambitious project to produce a major fully illustrated work on the Birds of America.

Hoping to fare better he came to England. The essential problem was to find an engraver prepared to work on the seven hundred plates he projected and to find enough subscribers for the work, which was issued in parts. Both were happily found. The work took 11 years to publish from 1827 to 1838 and by the end of the period the original 300 subscribers had dwindled to about 100.

This tremendously important and decorative work is thus extremely rare. Most sets are in public libraries; in other cases sets have been broken up and the plates sold separately.

This was one of the very few complete editions remaining in private hands, and was in unusually fine condition; the plates engraved in aquatint and coloured by hand had hardly suffered over the years. An extra point of interest was the addition of early states of 13 of the plates - early proofs before extra birds were added to the composition. Nevertheless the price was remarkable; a less distinguished set was sold for £. 21,429 at Parke Bernet in New York in 1966.

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THE

BIRDS OF AMERICA,

FROM

DRAWINGS MADE IN THE UNITED STATES

AND THEIR TERRITORIES.

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BY

JOHN JAMES AUDUBON, F.R.S., &c., &c.

RE-ISSUED BY J. W. AUDUBON

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BIRDS OF AMERICA.

FAMILY XVI.—AGELAINÆ. MARSH BLACK-BIRDS.

Bill of moderate length, sometimes short, seldom longer than the head, stout, straight, conical, compressed, tapering, pointed; upper mandible with the dorsal line nearly straight, the nasal sinus short and very wide, the ridge thus appearing to encroach on the forehead, the sides rounded, the edges without notch; lower mandible with the angle short and rounded, the dorsal line straight, the edges involute. Nostrils basal, roundish or oblong. Head rather large, ovate; neck short; body moderately full. Legs of moderate length, stout, rather slender; tarsus compressed, with eight anterior scutella; hind toe large, lateral toes equal, the outer adherent at the base. Claws generally long, arched, compressed, acute. Plumage soft, blended, in the males usually glossy. Wings of moderate length, with the outer three or four quills longest, the first being very little shorter than the second, or sometimes even exceeding it; tail of twelve feathers, of moderate length, or elongated. The roof of the upper mandible concave, with three longitudinal ridges, of which the middle is larger, and at the base forms a hard prominence; tongue sagittate and papillate at the base, narrow, deep, pointed. Œsophagus wide, dilated about the middle; proventriculus oblong; stomach roundish or elliptical, with the lateral muscles distinct and well developed; the epithelium dense and longitudinally rugous; intestine short and rather wide; cœca very small, cylindrical; cloaca oblong. Trachea simple, with four pairs of inferior laryngeal muscles. Female much smaller. Nest various, on trees or bushes, or on the ground, generally elaborate. Eggs about five, ovate, spotted and streaked.

GENUS I.—DOLICHONYX *Swains.* RICE-BIRD.

Bill rather short, very stout, moderately compressed, conical; upper mandible with the dorsal line straight, a little convex at the base, and very slightly deflected at the end, its ridge rather broad, indistinct, sides rounded, edges direct, overlapping, tip rather acute; lower mandible with the angle of moderate length, very broad, dorsal outline ascending, slightly convex at the base, sides erect and convex, tip acute; gap-line ascending for a fourth of its length, then direct. Nostrils small, elliptical, operculate. Plumage blended, but firm, with little gloss. Wings rather long, pointed, the first quill longest. Tail of moderate length, the feathers narrow and acuminate. Toes large; claws very long, little arched, slender, tapering to a fine point.

THE RICE-BIRD.—BOB-O-LINK.

DOLICHONYX ORYZIVORA, *Linn.*

PLATE CCXI.—MALE AND FEMALE.

Very few of these birds pass through Louisiana in spring, and still fewer, on their return, in autumn; for which reason I am inclined to think that they do not spend the winter months so much in the southern parts of America as in some of the West India Islands. Indeed I am the more inclined to believe this to be the case, as they seldom penetrate far into the interior, during their stay with us, but prefer the districts bordering upon the Atlantic, through which they pass and repass in incredible numbers.

In Louisiana, small detached flocks of males or of females appear about the middle of March and beginning of April, alighting in the meadows and grain-fields, where they pick up the grubs and insects found about the roots of the blades. I have heard it asserted, though I cannot give it as a fact,

Wandering Rice-bird.

1. Male. 2. Female.

Red Maple Acer Rubrum?

Drawn from Nature by J.J.Audubon,F.R.S.F.L.S. Lith.Printed & Col.d by J.T.Bowen, Philad.a

that the appearance of the Rice-bird in spring forebodes a bad harvest. The idea probably originates from the circumstance that these birds do not pass through Louisiana regularly every year, there being sometimes three or four springs in succession in which they are not observed.

The plumage of many of the males at this early season still resembles that of the females, but it changes in the course of their stay, which is seldom more than a fortnight. I have ascertained this fact by dissecting many at this period, when, notwithstanding the dull colour of their plumage, I found the sexual organs greatly developed, which is not the case in autumn, even in the old males. I had another clew to the discovery of this fact. No sooner did a flock of females make its appearance, than these dull-looking gentlemen immediately paid them such particular attention, and sang so vehemently, that the fact of their being of a different sex became undeniable.

Here they pass under the name of *Meadow-birds*. In Pennsylvania they are called *Reed-birds*, in Carolina *Rice Buntings*, and in the State of New York *Boblinks*. The latter appellation is given to them as far eastward as they are known to proceed for the purpose of breeding.

During their sojourn in Louisiana, in spring, their song, which is extremely interesting, and emitted with a volubility bordering on the burlesque, is heard from a whole party at the same time; when, as each individual is, of course, possessed of the same musical powers as his neighbours, it becomes amusing to listen to thirty or forty of them beginning one after another, as if ordered to follow in quick succession, after the first notes are given by a leader, and producing such a medley as it is impossible to describe, although it is extremely pleasant to hear it. While you are listening, the whole flock simultaneously ceases, which appears equally extraordinary. This curious exhibition takes place every time that the flock has alighted on a tree, after feeding for awhile on the ground, and is renewed at intervals during the day.

There is a very remarkable fact in the history of this species, which is, that while moving eastward, during their migration, in spring, they fly mostly at night; whereas in autumn, when they are returning southward, their flight is diurnal. This, kind reader, is another puzzle to me.

About the middle of May, the Boblinks reach the State of New York, their stay in the intermediate States being of short duration at that season, although sufficient to enable them to cause great injury to the corn fields in Virginia, Maryland, and Pennsylvania, where it is said, although I can scarcely give credit to the assertion, that they cut the blade near the root. This is perhaps laid to their charge for the purpose of aggravating the real injury which they afterwards inflict on the farmers, by feeding on the grain when in a milky and tender state. However, they reach the States of New

York and Connecticut, and extend their journey to the easternmost of our districts, proceeding also to the borders of Lake Champlain, Lake Ontario, and the St. Lawrence.

By this time they have become so plentiful, and have so dispersed all over the country, that it is impossible to see a meadow or a field of corn which does not contain several pairs of them. The beauty, or, perhaps more properly, the variety of their plumage, as well as of their song, attracts the attention of the bird-catchers. Great numbers are captured and exposed for sale in the markets, particularly in those of the city of New York. They are caught in trap-cages, and feed and sing almost immediately after. Many are carried to Europe, where the shipper is often disappointed in his profits, as by the time they reach there, the birds have changed their colours and seem all females.

Whilst the love-season lasts, the males are more sprightly than ever. Their song is mostly performed in the air, while they are rising and falling in successive jerks, which are as amusing as the jingling of their vocal essays. The variety of their colours is at this juncture very remarkable. It is equally so, when, on rising from among the grass and flying away from the observer, they display the pure black and white of their wings and body.

The nest of the Rice Bunting is placed on the ground, without much apparent care as to choice of situation, but always amongst the grass, or in a field of wheat or barley. It is composed of coarse dried grasses and leaves externally, and is lined with finer meadow grass. It appears large for the size of the bird. The female lays from four to six eggs, of a white colour, strongly tinged with dull blue, and irregularly spotted with blackish. They raise only one brood in a season.

No sooner have the young left the nest, than they and their parents associate with other families, so that by the end of July large flocks begin to appear. They seem to come from every portion of the Eastern States, and already resort to the borders of the rivers and estuaries to roost. Their songs have ceased, the males have lost their gay livery, and have assumed the yellow hue of the females and young, although the latter are more firm in their tints than the old males, and the whole begin to return southward, slowly and with a single *clink*, sufficient however to give intimation of their passage, as they fly high in long files during the whole day.

Now begin their devastations. They plunder every field, but are shot in immense numbers. As they pass along the sea-shores, and follow the muddy edges of the rivers, covered at that season with full grown reeds, whose tops are bent down with the weight of the ripe seeds, they alight amongst *them in countless multitudes*, and afford abundant practice to every gunner.

It is particularly towards sunset, and when the weather is fine, that the

sport of shooting *Reed-birds* is most profitable. They have then fully satiated their appetite, and have collected closely for the purpose of roosting. At the discharge of a gun, a flock sufficient to cover several acres rises *en masse*, and performing various evolutions, densely packed, and resembling a sultry cloud, passes over and near the sportsman, when he lets fly, and finds occupation for some time in picking up the dozens which he has brought down at a single shot. One would think that every gun in the country has been put in requisition. Millions of these birds are destroyed, and yet millions remain, for after all the havoc that has been made among them in the Middle Districts, they follow the coast, and reach the rice plantations of the Carolinas in such astonishing numbers, that no one could conceive their flocks to have been already thinned. Their flesh is extremely tender and juicy. The markets are amply supplied, and the epicures have a glorious time of it.

By the end of October, few are found remaining in the States of New York and Pennsylvania; and by the first of December they have left the United States.

The food of these birds varies according to the season, and consists of grubs, caterpillars, insects of various kinds, such as beetles, grasshoppers, crickets, and ground-spiders, and the seeds of wild oats, wheat, barley, rice, and other grasses. They cling or climb along the stalks of rank weeds, reeds, and corn, with great activity and ease, and when at roost place themselves as near the ground as possible.

According to Dr. RICHARDSON, this species does not proceed northward beyond the 54th parallel, where it arrives in the beginning of June. Among the Creek Indians it bears the name of "Skunk-bird," from the similarity of its plumage to the colouring of the Skunk, *Mephitis Americana*. It has been observed on the Rocky Mountains by Mr. TOWNSEND. I found it entering the United States from beyond the Texas, on the shores of the Gulf of Mexico, early in April, when most of the males were in full plumage, and I have no doubt that before they reach the Carolinas this state of plumage is perfected.

My friend Dr. BREWER describes their mode of nestling in Massachusetts as follows:—"This species breeds here abundantly, although, from the careful manner in which the nest is concealed, it is very seldom met with. The Rice-bird arrives in New England about the middle of May, and commences its nest usually about the first of June. It is placed on the ground, and here for the most part in meadows, and with so much pains at concealment, that it is to be found only by accident. Ingenious stratagems are also used to decoy the passer-by from its vicinity: for instance, a pretended anxiety about parts of a field in which they have not the slightest interest; so that

persons unaware of this are often induced to search spots many rods distant from the object of their pursuit. The nest is very simple, usually consisting of a few pieces of hay and straw, so loosely arranged as hardly to admit of removal without falling to pieces. The eggs, five in number, measure fifteen-sixteenths of an inch in length, and eleven-sixteenths in breadth. About the 8th of August, they assemble in large flocks, and take their departure for the south."

In a male preserved in spirits, the palate is ascending, with two lateral ridges, which on meeting anteriorly form a soft prominence; on the upper mandible beneath are three ridges, of which the lateral are larger; the lower mandible is deeply concave; the width of the mouth 4½ twelfths. The tongue is 5 twelfths long, sagittate and papillate at the base, narrow, deep, pointed, and with a median groove on its upper surface. It thus approaches in form to that of the Finches and Buntings. The œsophagus is 2½ inches long, its greatest width 4½ twelfths, contracting to 2 twelfths as it enters the thorax; the proventriculus 3 twelfths broad, its glands forming a belt 4 twelfths in breadth. The stomach is rather small, roundish, much compressed, 6 twelfths in length, and of the same breadth; its lateral muscles thick, the tendons large; the epithelium thin, tough, reddish-brown, with longitudinal rugæ. The intestine is 7 inches 9 twelfths long; its average width 1½ twelfths; the cœca ½ twelfth long, ¼ twelfth broad, 9 twelfths from the extremity.

The trachea is 1½ inches long, 1 twelfth broad at the upper part, considerably compressed, the rings 55, with two dimidiate; the muscles as in the last species; bronchi of about 12 half rings.

Rice-Bunting, *Emberiza oryzivora*, Wils. Amer. Orn., vol. ii. p. 48.

Icterus agripennis, Bonap. Syn. p. 53.

Dolichonyx oryzivorus, *Sharp-tailed Rice-bird*, Swains. and Rich. F. Bor. Amer., vol. ii. p. 278.

Rice-Bird, or Bob-o-link, Nutt. Man., vol. i. p. 185.

Rice-bird, *Icterus agripennis*, Aud. Orn. Biog., vol. i. p. 283; vol. v. p. 486.

Male with the head, cheeks, lower parts, wings, and tail, black; a band of brownish-yellow across the hind neck; the back anteriorly black, the feathers with yellowish edges, posteriorly light grey, passing into white, of which colour are the scapulars. Female with the upper parts light yellowish-brown, longitudinally streaked with blackish-brown; the lower parts light greyish-yellow, the sides streaked with dusky. In autumn, the males assume the plumage of the female.

Male, 7, 11.

Passes from Texas eastward and northward. Breeds from the Middle Districts northward. Extremely abundant. Migratory.

The Red Maple.

Acer rubrum, *Willd.*, Sp. Plant., vol. iv. p. 984. *Pursh*, Flor. Amer., vol. i. p. 265. *Mich.*, Arb. Forest. de l'Amer. Sept., vol. ii. p. 210, pl. 14.—Octandria Monogynia, *Linn.*—Acerineæ, *Juss.*

This species, which is known by the names of *red maple* and *swamp maple*, is distinguished by its five-lobed or three-lobed leaves, which are cordate at the base, unequally and deeply toothed, and glaucous beneath; its sessile umbels, elongated pedicels, and smooth germens. The flowers and seeds are red. It is very extensively distributed, and in the swamps of Pennsylvania and New Jersey attains a height of from sixty to eighty feet. When young, the bark is smooth, and covered with large white spots, but it ultimately cracks and becomes brown. The wood is hard and close, and takes a good polish. It is extensively used for various purposes.

Genus II.—MOLOTHRUS, *Swains.* COW-BIRD.

Bill rather short, very stout, moderately compressed, conical; upper mandible with the dorsal line slightly convex, its ridge flattened for half its length, afterwards narrow, sides convex, edges direct, tip rather acute; lower mandible with the angle short and wide, the dorsal outline ascending, straight, sides erect and convex, edges involute, tip acute; gap-line gently ascending for a third of its length, afterwards direct. Nostrils small, elliptical. Plumage blended, glossy. Wings rather long, pointed, the second quill longest, the first almost equal. Tail of moderate length, the feathers broad and rounded.

THE COW-PEN-BIRD.

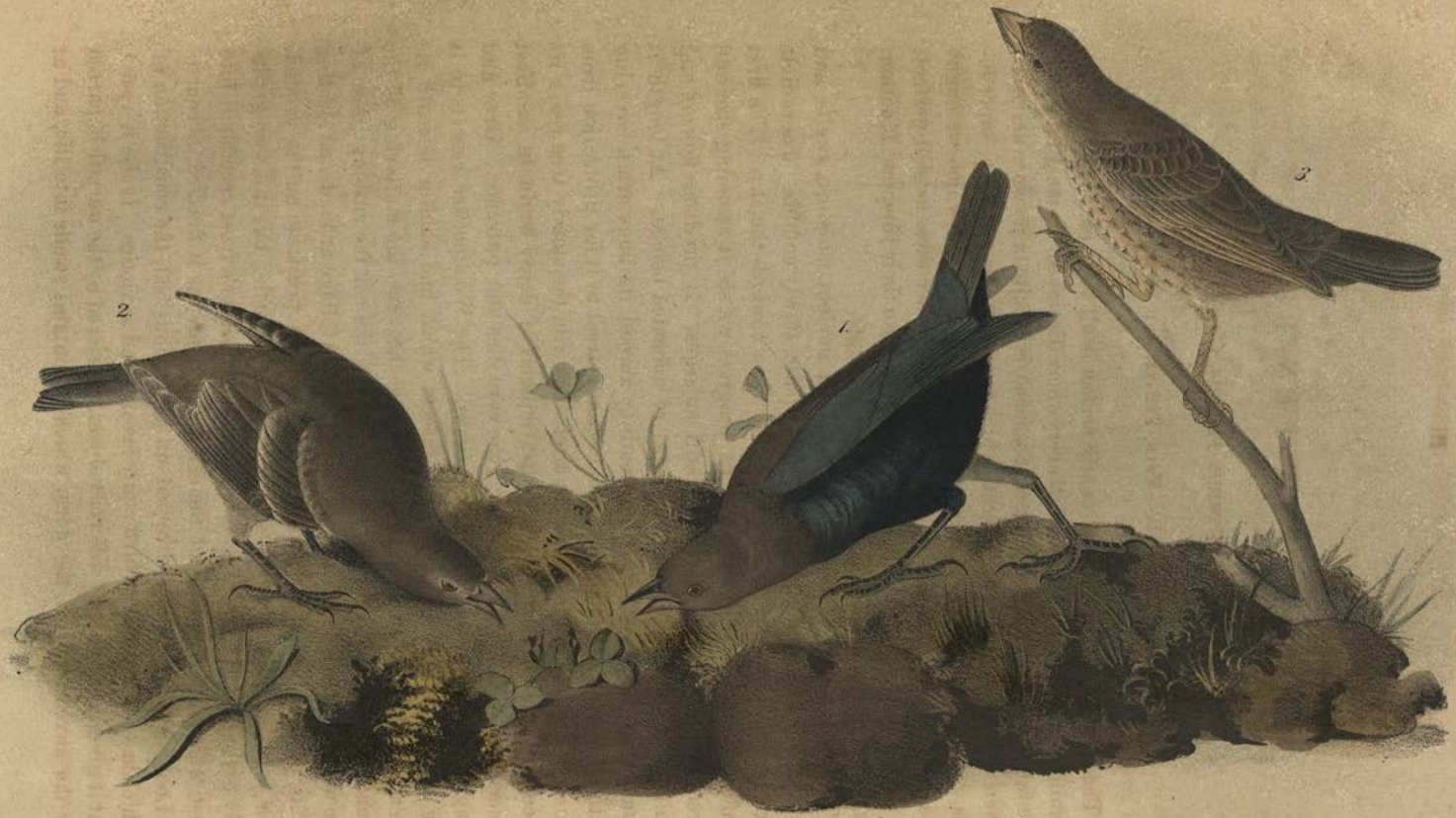
MOLOTHRUS PECORIS, *Gmel.*

PLATE CCXII.—MALE, FEMALE, AND YOUNG.

The works of Nature are evidently perfect in all their parts. From the manifestations of consummate skill everywhere displayed, we must infer that the intellect which planned the grand scheme, is infinite in power; and even when we observe parts or objects which to us seem unnecessary, superfluous, or useless, it would be more consistent with the ideas which we ought to have of our own feeble apprehension, to consider them as still perfect, to have been formed for a purpose, and to execute their intended function, than to view them as abortive and futile attempts.

The seed is dropped on the ground. It imbibes moisture, swells, and its latent principle of life receiving an impulse, slowly unfolds. Its radicle shoots down into the earth, its plumule rises towards the sky. The first leaflets appear, and as we watch its progress, we see it assuming size and strength. Years pass on, and it still enlarges. It produces flowers and fruits, and gives shelter to multitudes of animated beings. At length it stands the glory of the forest, spreading abroad its huge arms, covering with its dense foliage the wild animals that retreat to it for protection from the sun and the rain. Centuries after its birth, the stately tree rears its green head to the sky. At length symptoms of decay begin to manifest themselves. The branches wither, the core dies and putrefies. Grey and shaggy lichens cover its trunk and limbs. The Woodpecker resorts to it for the purpose of procuring the insects which find shelter beneath its decayed bark. Blackness spreads over the heavens, the muttering of the thunder is heard. Suddenly there comes on the ear the rushing noise of the whirlwind, which scatters the twigs and the foliage around, and meeting in its path the patriarch of the forest, lays him prostrate on the ground. For years the massy trunk lies extended on the earth; but it is seen gradually giving way. The summer's sun and the winter's frost crumble it into dust, which goes to augment the soil. And thus has it finished its course.

Look again at the egg, dropped on its curious bed, the construction of which has cost the parent bird many labours and anxieties. It also is a seed, but it gives rise to a very different object. Fostered by the warmth imparted by the anxious parent, the germ which it contains swells into life, and at



Common Cow-bird.

Drawn from Nature by J.J. Audubon, F.R.S.F.L.S.

1. Male. 2. Female. 3. Young.

Lith.d Printed & Col.d by J. T. Bowen, Philad.a

length bursting its fragile enclosure, comes tottering into existence. To sustain the life and contribute to the development of this helpless being, the mother issues in quest of food, which she carefully places in its open throat. Day after day it acquires new development under the fostering care of its nurse, until at length, invested with all the powers which Nature intended to bestow upon it, it spreads its pinions to the breeze, and sallies forth to perform the many offices for which it is destined.

How often have I watched over the little bird in its nest, and marked the changes which day after day it exhibited: the unfolding of its first scanty covering of down, the sprouting of its plumelets, the general enlargement of all its parts! With what pleasure have I viewed the development of its colouring and the early manifestations of its future habits!

Amid these wonderful operations of Nature, there is one which has occasionally engaged my attention, and occupied my thoughts ever since I first became acquainted with the bird of which I now proceed to speak.

The Cow-bird, which in form and character is allied to the Crow Blackbird, the Redwing, the Orchard Oriole, and other species, differs from these birds in one important circumstance, which approximates it to the Cuckoo of Europe, a bird entirely different in habits and appearance. Like that bird, it makes no nest of its own, but deposits its eggs, one at a time, in the nests of other birds, leaving them to the care of a foster-parent.

In the State of Louisiana, the Cow-pen-bird, or, as it is also called, the Cow Blackbird, or Cow Bunting, is seen only at long intervals. Some years pass without the appearance of a single individual there. At other times immense flocks are observed mixing with the Redwings, Crow Blackbirds, and Robins, searching about the farm-yards, the fields and the meadows with great diligence for food. At such times they are easily approached, and are shot in great numbers, being considered more delicate and better flavoured than the species with which they associate, excepting the Robin. Like the Redwings, they seek the swamps and the margins of lakes and rivers, where they roost among the tall sedges, flags, and other aquatic plants. When disturbed in these retreats, they rise in a dense mass, perform various evolutions in the air, and alight again to resume their repose. At daybreak, they return to the cultivated parts of the country to search for food. In Georgia and South Carolina, they occur in great abundance every winter. Some also spend the winter in Virginia and Maryland, as well as in the States of Kentucky and Indiana, where I have observed them lingering about farm-houses and cow-pens during severe weather. Great flocks, however, retire much farther south. I have seen many of these birds passing high in the air, at mid-day, in the month of October, pursuing their course steadily, as if bent upon a long journey.

The Cow-pen-bird, after passing the winter in the Southern States, or in regions nearer the equator, makes its appearance in the Middle States about the end of March or beginning of April, arriving in small parties. Their flight is performed chiefly under night, and during the day they are seen resting on the trees, or frequenting the banks of streams in quest of food. They continue to be seen in small flocks until the beginning of June, when they disappear, the various flocks having successively passed northward.

Its flight is similar to that of the Redwing, with which it frequently associates in its rambles. During spring and summer it feeds on insects, larvæ, and worms, frequenting the cornfields, meadows and open places.

The males and females arrive together; but contrary to the general practice among the feathered tribes, these birds do not pair. The males seem to regard the females with little interest. The numberless acts of endearment, the many carollings, joyous flights, and bursts of ecstatic feeling, which other birds display at the commencement of the breeding season, are entirely dispensed with. When a particular intimacy takes place between two individuals of different sexes, it soon ceases, and the same individuals mate with others. The sexual attachment intended for the benefit of the young brood does not take place, because in this species the young are not to be reared by their parents, but to be left to the care of birds of other kinds. The Cow-pen Buntings, in fact, like some unnatural parents of our own race, send out their progeny to be nursed.

When the female is about to deposit her eggs, she is observed to leave her companions, and perch upon a tree or fence, assuming an appearance of uneasiness. Her object is to observe other birds while engaged in constructing their nests. Should she not from this position discover a nest, she moves off and flies from tree to tree, until at length, having found a suitable repository for her egg, she waits for a proper opportunity, drops it, flies off, and returns in exultation to her companions.

The birds in whose nests the eggs of the Cow Bunting are thus deposited, are all smaller than itself. That which is most frequently favoured with the unwelcome gift is the Maryland Yellow-throat. The other species in which I have found the egg of the Cow-bird are the Chipping Sparrow, the Blue-bird, the Yellow-bird, several Fly-catchers, especially the Blue-grey and the White-eyed, and the Golden-crowned Thrush. The nests of these birds are very different in form, size and materials, as well as in position, some being placed high on trees, others in low bushes, and that of the Thrush on the ground.

It is also a very remarkable circumstance, that although the Cow-bird is larger than the species in the nests of which it deposits its eggs, the eggs themselves are not much superior in size to those of their intended foster-

parents. This is equally the case with the European Cuckoo, which selects, for the purpose of depositing its egg, the nest of the Titlark, Hedge-Sparrow, or some other small bird. And here, as in so many other cases, may we observe the adaptation of means to ends which nature has so admirably made. The egg of the Cuckoo, in fact, is not so large as that of the Skylark, a bird which, to the other, hardly bears the proportion of one to six. The intention here has not been by a similarity in size and colouring, to deceive the bird, in whose nest the egg is placed, for, on all occasions, the individuals on which the gift has been bestowed, receive it unwillingly, and in fact, manifest great alarm and resentment. On the contrary, the object has been to secure the development of the embryo, by adapting the size of the egg to the capability of imparting heat to it.

Should the Cow-bird deposit its egg in a nest newly finished, and as yet empty, the owners of the nest not unfrequently desert it; but, when they have already deposited one or more eggs, they generally continue their attachment to it. There is reason for believing, however, that, on all occasions, they are aware of the intrusion that has been effected.

The Cow-bird never deposits more than one egg in a nest, although it is probable it thus leaves several in different nests, especially when we consider the vast numbers of the species that are to be seen on their return southward. It does not make a forcible entrance, but watches its opportunity, and when it finds the nest deserted by its guardians, slips to it like one bent on the accomplishment of some discreditable project. When the female returns, and finds in her nest an egg which she immediately perceives to be different from her own, she leaves the nest, and perches on a branch near it, returns and retires several times in succession, flies off, calling loudly for her mate, who soon makes his appearance, manifesting great anxiety at the distress of his spouse. They visit the nest together, retire from it, and continue chattering for a considerable time. Nevertheless, the obnoxious egg retains its position, the bird continues to deposit its eggs, and incubation takes place as usual. The egg of the Cow-bird is of a regular oval form, pale greyish-blue, sprinkled with umber-brown dots and short streaks, which are more numerous at the larger end.

Incubation has been continued for nearly a fortnight, and the young Cow-bird bursts the shell. Another remarkable occurrence now takes place. The eggs of the foster-bird are yet unhatched, and soon after disappear. In every case the Cow-bird's egg is the first hatched, and herein also is manifested the wisdom of Nature; for the parent-birds finding a helpless object, for whose subsistence it behoves them to provide, fly off to procure food for it. The other eggs are thus neglected, and the chicks which they contain necessarily perish. Birds have probably the means of knowing an addle egg, for,

when any such remain after the hatching of the others, they always remove them from the nest; and, in the present case, the remaining eggs are soon removed, and may sometimes be seen strewn about in the vicinity of the nest. In the case of the Cuckoo matters are differently managed, for the young bird of that species very ungratefully jostles out of the nest all his foster-brothers and sisters, that he may have room enough for himself. If we are fond of admiring the wisdom of Nature, we ought to mingle reason with our admiration; and here we might be tempted to suspect her not so wise as we had imagined, for why should the poor Yellow-throat have been put to the trouble of laying all these eggs, if they are, after all, to produce nothing? This is a mystery to me; nevertheless, my belief in the wisdom of Nature is not staggered by it.

As the young Cow-bird grows up, its foster parents provide for it with great assiduity, and manifest all the concern and uneasiness at the intrusion of a stranger, that they would do were their own offspring under their charge. When fully fledged, the young bird is of a sooty-brown colour. Long after it has left the nest, it continues to be fed by its affectionate guardians, until it is at length able to provide for itself.

Towards the end of September, the old and young Cow-birds congregate in vast numbers, and are seen wending their way southward, sometimes by themselves, more frequently intermingled with other species, such as the Purple Grakles and the Redwings, which they join in their plundering expeditions. They are to be seen in the Middle States until near the end of October, although unusually severe weather sometimes forces them southward at an earlier period.

This species derives its name from the circumstance of its frequenting cow-pens. In this respect it greatly resembles the European Starling. Like that bird it follows the cattle in the fields, often alights on their backs, and may be seen diligently searching for worms and larvæ among their dung. In spring, the cattle in many parts of the United States are much infested with intestinal worms, which they pass in great quantities, and on these the Cow-bird frequently makes a delicious repast.

It has no song properly so called, but utters a low muttering sort of chuckle, in performing which, it is seen to swell out its throat, and move the feathers there in succession, in a manner very much resembling that of the European Starling.

The young bird from which I made the present figure was sent to me by my friend THOMAS NUTTALL, Esq., through Dr. TRUDEAU. It is the same as that described by the former gentleman under the name of "Ambiguous Sparrow, *Fringilla ambigua*," at p. 485 of his Manual of the Ornithology of the United States and of Canada. On inspecting it, however, I at once

felt convinced that it was nothing else than a young Cow-pen-bird, scarcely fledged, it having been found "in the early part of the summer of 1830." With the view, therefore, of preventing further mistakes I thought it well to figure it.

It is in the habit of retiring to rest and spending the night on the reeds bordering ponds in unfrequented places, as are the rest of our "Blackbirds." One of their roosting-places is alluded to by my young friend Dr. THOMAS M. BREWER, of Boston, in a letter, as follows:—"The four Cow Blackbirds which I obtained the last day you were with us, were shot in the marshes of Fresh Pond, by Mr. CHARLES E. WARE. I went to the pond a day or two after, but was unable to procure any, as it was so late in the afternoon that they were all gone to roost in the reeds, and I could see them in thousands, nay, tens of thousands. The rustling noise they made was truly deafening."

"You can hardly expect," continues Dr. BREWER, "that I should add any thing to the detailed account which I have already given you of this bird, and yet I cannot but think that much remains to be told respecting its habits. Many circumstances relative to its history still solicit the attention of the inquisitive naturalist, but of these I am not at present qualified to speak. There is one subject, however, on which I may offer a few remarks, namely, its laying in the nest of *Fringilla tristis*. WILSON first asserted that it burdens that species with the charge of its egg; but Mr. NUTTALL denies the possibility of such an occurrence, on the ground that the Cow Blackbirds are not present at the time when the Goldfinch is breeding. For this, however, Mr. ORD takes him to task, and states that he has himself seen a Cow Bunting's egg in the nest of the bird in question. Now, it appears to me, that when we consider how extremely incorrect WILSON's description of the nest and eggs of *Fringilla tristis* is, very little reliance can be placed upon his assertion in this case. I can add my testimony to the authority of Mr. NUTTALL as to the absence of the Cow-bird from this State while the Goldfinch is breeding here. The former leaves Massachusetts before the first of July, sometimes earlier, indeed by the middle of June, and never lays on its return late in September. I have never found the nest of the Goldfinch before the 7th of August, although Mr. NUTTALL states that it breeds in July. But then Mr. ORD says that he has himself witnessed the occurrence. I would be the last person to doubt that gentleman's veracity, nor have I the slightest idea that he would wilfully make a mistatement; yet I cannot help thinking that in this matter he has been deceived. Perhaps he is correct: but, in that case, he must either have in his part of the country a distinct species of Goldfinch, or its habits and those of the Cow-bird must be very different there from what they are here. At all events, it is utterly impos sible that such an occurrence could ever have taken place in Massachusetts

I think, therefore, that the Goldfinch should be struck from the list of those species in the nests of which the Cow-bird lays. On the other hand, *Sylvia Blackburniæ* and *S. vermivora* are to be added to it. The Cow-bird is very common at Boston, having its eggs in the nests of the White-eyed Vireo, the Red-eyed, and any other that it chances to encounter, and departing in autumn for the south.

Cow Bunting, *Emberiza pecoris*, Wils. Amer. Orn., vol. ii. p. 145.

Icterus pecoris, Bonap. Syn., p. 53.

Molothrus pecoris, *Cow-pen or Cuckoo Bunt*, Swains. and Rich. F. Bor. Amer., vol. ii. p. 277.

Cow Troopial, or Cow Blackbird, *Icterus pecoris*, Nutt. Man., vol. i. p. 178.

Cow-pen-Bird, *Icterus pecoris*, Aud. Orn. Biog., vol. i. p. 493; vol. v. p. 233, 490.

Male with the head and neck sooty-brown, the body black, glossed with green, the fore part of the back with blue. Female considerably smaller, greyish-brown, the lower parts lighter. Young with the upper parts greyish-brown, the quills and tail darker; wing-coverts and secondary quills narrowly edged with light brown, primaries with whitish; lower parts dull yellowish-white, the sides marked with a series of dark brown pointed spots.

Male, 7, 11½.

Dispersed from Texas northward to lat. 68°, and throughout the United States. Great numbers winter in the Southern States.

An adult male of this species preserved in spirits presents the following characters. The roof of the mouth has three longitudinal ridges anteriorly, the middle ridge terminated by a soft prominence, similar to that of the Buntings, behind which the palate descends in the same manner as in them. The posterior aperture of the nares is oblong, with an anterior slit. The tongue is 7 twelfths long, fleshy, tapering, flat above, horny towards the end, and pointed. The œsophagus, which is 3¼ inches long, passes along the right side of the neck, accompanied by the trachea; its diameter at the commencement is 4 twelfths, but it immediately dilates into a crop, which extends to the length of 1½ inches, its greatest width being ½ inch; it then contracts to ¼ inch, and enters the thorax. The proventriculus measures 4½ twelfths broad. The stomach is a strong muscular gizzard, 9 twelfths long, 7½ twelfths broad, a little compressed; the lateral muscles large and distinct; the epithelium tough, longitudinally rugous, and of a reddish-brown colour. The contents of the stomach are grains of wheat. The intestine is rather short, and of moderate diameter, being 9½ inches long, and varying from 2 twelfths to 1½ twelfths in breadth; the diameter of the rectum 2½ twelfths, being the same as that of the gut immediately before it; and there is scarcely any distinct cloaca, the width of that part being not more than 4

twelfths. The cœca, 1 inch distant from the extremity, are 3 twelfths long, ½ twelfth in diameter.

The trachea is 2 inches 2 twelfths long, rather wide in proportion to the size of the bird, although not more than 1½ twelfths in diameter. The rings are 58; the bronchial half rings about 15. The lateral muscles are moderate; the sterno-tracheal extremely slender. There are four pairs of inferior laryngeal muscles, as in all the singing birds, whether thick-billed or not.

The digestive organs of this bird are in all respects precisely similar to those of the Finches, Grosbeaks, Buntings, and other allied genera.

The œsophagus, *a b c d*, is considerably dilated on the neck; the stomach, *e*, is a strong muscular gizzard, having the lateral muscles large and distinct, the lower prominent, the epithelium longitudinally rugous. The intestine, of which the commencement only is here represented, *f g*, is rather short and of moderate width. The cœca are an inch distant from the extremity, and about a quarter of an inch in length; and the rectum forms only a slight dilatation in place of a cloaca.

GENUS III.—AGELAIUS, *Swains.* MARSH-BLACKBIRD.

Bill shorter than the head, stout, straight, conical, tapering to an acute point; upper mandible with the dorsal line straight, slightly convex at the base, the ridge flattened toward the base, where it forms a short tapering process on the forehead, the sides rounded, the edges inflected, the tip a little depressed; lower mandible with the angle short and wide, the sides convex at the base, toward the end rounded, the edges involute, the tip acute; the gap-line ascending to the base, afterwards direct. Nostrils basal, oval, with a small operculum. Head ovate, of moderate size; neck short; body moderately stout. Feet of ordinary length, rather stout; tarsus compressed, with seven anterior scutella; toes rather large, the first much stronger, the outer a little shorter than the inner, and adherent at the base. Claws long, little arched, compressed, laterally grooved, very acute. Plumage soft and blended, glossy in the males. Wings of moderate length, with the outer four quills nearly equal. Tail rather long, rounded. Roof of the upper mandible with three longitudinal ridges; tongue tapering to a horny, flattened, slightly emarginate tip; œsophagus wide, considerably dilated about the middle; stomach roundish, muscular; intestine short and of moderate width; cœca very small, cloaca oblong.

YELLOW-HEADED TROOPIAL.

AGELAIUS XANTHOCEPHALUS, *Bonap.*

PLATE CCXIII.—MALE, FEMALE, AND YOUNG.

This species was first made known as an inhabitant of North America by the naturalists of Major LONG'S expedition to the Rocky Mountains. According to Dr. RICHARDSON, "the species ranges in summer to about the fifty-eighth parallel," but has not been found to the eastward of the Missis-

Saffron-headed Marsh-Blackbird.

1. Male. 2. Female 3. Young Male.

Drawn from Nature by J.J.Audubon,F.R.S.F.L.S. Lith.ª Printed & Col.ª by J. T. Bowen, Philad.ª

sippi, where it "arrives from the southward in the middle of May, and by the 20th of the same month reaches the Saskatchewan, where it associates with the Redwing, and, being more numerous, commits even greater havoc in the corn-fields. Mr. NUTTALL has favoured me with the following notice respecting it. "On the 2d of May, around the Kansa (Texian) Agency, we now saw abundance of the Yellow-headed Troopial, associated with the Cow-bird. They kept much on the ground in companies, the males (at this time) by themselves. In arable or loose soil they dig into the earth with their bills in quest of insects and larvæ, are very active, and straddle about with a quaint gait, and now and then, while on the ground, which they wholly frequent, in the manner of the Cow-bird, whistle out with great effort, a chuckling note sounding like *ko-kukkle-'ait*, often varying into a straining squeak, as if using their utmost endeavour to make some kind of noise in token of sociability. Their music, if such it deserves to be called, is however even inferior to the harsh note of the Cow-bird. Are they also polygamous? Afterwards, in the month of June, by the edge of a grassy marsh, in the open plain of the Platte, several hundred miles inland, we met with the nest of this bird containing several spotted and blotched greenish-white eggs, not much unlike those of the Red-winged Starling, *Agelaius phœniceus*." To this Mr. TOWNSEND adds:—"*Agelaius xanthocephalus* inhabits the western plains of the Missouri and banks of the Platte river to the Black Hills. The nest of this species is built under a tussock in marshy ground, formed of fine grasses, and canopied over like that of the Meadow Lark. The eggs, from two to four, are of a blueish-white, covered all over with minute specks of purple, largest and most numerous at the great end. It associates with the Cow Bunting, and alights on the backs of the horses. Its note is very harsh and grating, and does not resemble that of the Red-winged Blackbird."

I have represented a male, a female, and the head of a young bird approaching towards maturity.

Western Plains, California, and Fur Countries. Abundant. Migratory.

YELLOW-HEADED TROOPIAL, *Icterus icterocephalus*, Bonap. Amer. Orn., vol. i. p. 27.

ICTERUS XANTHOCEPHALUS, Bonap. Syn., p. 52.

AGELAIUS XANTHOCEPHALUS, *Saffron-headed Maize-bird*, Swains. and Rich. F. Bor. Amer., vol. ii. p. 281.

YELLOW-HEADED TROOPIAL, Nutt. Man., vol. i. p. 176.

YELLOW-HEADED TROOPIAL, *Icterus xanthocephalus*, Aud. Orn. Biog., vol. v. p. 6

Adult Male, 9; wings, $5\frac{1}{2}$.

Bill shorter than the head, stout, straight, conical, tapering to a fine point; upper mandible with the dorsal line nearly straight, being slightly convex at

the base, the ridge a little flattened toward the base, where it runs into a short tapering process, the sides rounded, the edges inflected, the tip a little depressed; lower mandible rather higher at the base than the upper, with the angle short and wide; the sides convex at the base, toward the end rounded, the edges involute, the tip acute; the gap-line straight, but at the base deflected. Nostrils oval, in the fore part of the short nasal depression.

Head of moderate size, ovate, with the forehead flattened; neck short; body moderately stout. Feet of ordinary length; tarsus rather stout, compressed, with seven large anterior scutella, and two lateral plates, meeting behind at an acute angle; toes rather large, compressed, the first much stronger, the outer a little shorter than the inner and united with the third as far as the second joint; claws long, little arched, compressed, laterally grooved, very acute.

Plumage soft, blended, glossy; the feathers generally ovate; those on the upper part of the head stiffish and somewhat silky. Wings of ordinary length, the first, second, and third quills almost equal, the second being longest; outer secondaries slightly emarginate. Tail rather long, rounded, the lateral feathers four-twelfths of an inch shorter than the longest.

Bill and feet black; iris hazel. The head, the upper part of the hind neck, the fore neck and part of the breast, orange-yellow, the throat paler; the feathers along the base of the bill, the loral space, a band below the eye, and a narrower one above it, black. The rest of the plumage is glossy black, excepting two bands on the outer part of the wing, formed by some of the smaller coverts, and the primary coverts, which are white.

Length to end of tail 9 inches; bill along the ridge $\frac{14}{12}$; wing from flexure $5\frac{10}{12}$; tail $4\frac{4}{12}$; tarsus $1\frac{5}{12}$; hind toe $\frac{7}{12}$, its claw $\frac{8}{12}$; second toe $\frac{8}{12}$, its claw $\frac{5}{12}$; third toe $\frac{11}{12}$, its claw $\frac{5}{12}$; fourth toe $\frac{7}{12}$, its claw $\frac{5}{12}$.

Female.

The female, which is much smaller, is of a uniform greyish-brown colour, with the feathers at the base of the upper mandible, a band over the eye, and the fore part of the neck light yellow; the throat dull white, and the feathers on the middle of the breast margined with white toward the end. The bill and feet are dusky brown.

Young.

The head represented is that of a young male assuming the plumage of the adult.

Red-and-white-shouldered Marsh Blackbird.

Male.

Drawn from Nature by J.J. Audubon F.R.S.F.L.S. Lith.d Printed & Col.d by J.T. Bowen, Phila.a

RED-AND-WHITE-WINGED TROOPIAL, OR MARSH BLACKBIRD.

AGELAIUS TRICOLOR, *Aud.*

PLATE CCXIV.—MALE.

How delightful, I have often exclaimed, must have been the feelings of those enthusiastic naturalists, NUTTALL and TOWNSEND, while traversing the ridges of the Rocky Mountains! How grand and impressive the scenery presented to their admiring gaze, when from an elevated station they saw the mountain torrent hurling its foamy waters over the black crags of the rugged ravine, while on wide-spread wings the Great Vulture sailed overhead watching the departure of the travellers, that he might feast on the salmon, which in striving to ascend the cataract had been thrown on the stony beach! Now the weary travellers are resting on the bank of a brawling brook, along which they are delighted to see the lively Dipper frisking wren-like from stone to stone. On the stunted bushes above them some curious Jays are chattering, and as my friends are looking upon the gay and restless birds, they are involuntarily led to extend their gaze to the green slope beneath the more distant crags, where they spy a mountain sheep, watching the movements of the travellers, as well as those of yon wolves stealing silently toward the fleet-footed animal. Again the pilgrims are in motion; they wind their pathless way round rocks and fissures; they have reached the greatest height of the sterile platform; and as they gaze on the valleys whose waters hasten to join the Pacific Ocean, and bid adieu, perhaps for the last time, to the dear friends they have left in the distant east, how intense must be their feelings, as thoughts of the past and the future blend themselves in their anxious minds! But now I see them, brother-like, with lighter steps, descending toward the head waters of the famed Oregon. They have reached the great stream, and seating themselves in a canoe, shoot adown the current, gazing on the beautiful shrubs and flowers that ornament the banks, and the majestic trees that cover the sides of the valley, all new to them, and presenting a wide field of discovery. The melodies of unknown songsters enliven their spirits, and glimpses of gaudily plumed birds excite their desire to search those beautiful thickets; but time is urgent, and onward they must speed. A deer crosses the stream, they pursue and capture it; and it being now evening, they land and soon form a camp, carefully concealed

from the prying eyes of the lurking savage. The night is past, the dawn smiles upon the refreshed travellers, who launch their frail bark; and as they slowly float on the stream, both listen attentively to the notes of the Red-and-White-winged Troopial, and wonder how similar they are to those of the "Red-winged Starling:" they think of the affinities of species, and especially of those of the lively birds composing this beautiful group.

This beautiful species was discovered in Upper California by my friend THOMAS NUTTALL, Esq., from whom I received the specimen represented in the plate, together with the following account. "Flocks of this vagrant bird, which, in all probability, extends its migrations into Oregon, are very common around Santa Barbara in Upper California, in the month of April. Their habits are similar to those of the Red-winged Starling, (*Agelaius phœniceus*,) but they keep in large flocks apart from that species, which also inhabits this country as well as Mexico. They are seldom seen but in the near suburbs of the town, feeding at this time almost exclusively on the maggots or larvæ of the blow-flies, which are generated in the offal of the cattle constantly killed around the town for the sake of the hides. In large whirling flocks they are seen associated with the Cow-birds, Common Grakles, Red-wings, and a small species with an orange-yellow head, flitting about in quest of food, or perching on the orchard trees in the town, where they keep up an incessant chatter and discordant confused warble, much more harsh or guttural than the note of the Cow-bird. They are also common around Monterey. With the female, and the circumstances of breeding, I am not acquainted."

RED-AND-WHITE-WINGED TROOPIAL, *Icterus tricolor*, Aud. Orn. Biog., vol. v. p. 1.

Male, 9; wing, 5.

North California. Abundant. Migratory.

Adult Male.

Bill nearly as long as the head, conical, straight, moderately stout, tapering to a fine point; upper mandible with the dorsal line nearly straight, being a little convex at the base, the ridge a little flattened toward the base, where it runs into a short tapering process, the sides rounded, the edges inflected, the tip a little depressed; lower mandible higher at the base than the upper, with the angle rather short and wide, the sides rather flat at the base, convex toward the end, the edges inflected, the tip acute; the gap-line straight, but at the base deflected. Nostrils oval, in the fore part of the short nasal depression.

Head of moderate size, ovate, with the forehead flattened; neck short; body moderately stout. Feet of ordinary length; tarsus rather stout, com

Red-and-black-shouldered Marsh-Blackbird.

1 Male. 2 Female.

Drawn from Nature by J.J Audubon, F.R.S.F.L.S. Lith.ª Printed & Col.ª by J. T. Bowen, Phulad.ª

pressed, with seven large anterior scutella, of which the upper are blended, and two lateral plates meeting at an acute angle behind ; toes rather large, compressed, the first much stronger, the outer a little shorter than the inner ; claws large, arched, compressed, acute.

Plumage soft, blended, glossy, the feathers ovate and rounded. Wings of ordinary length, the second and third quills longest and equal, the first shorter than the fourth ; the outer secondaries abrupt, and slightly repand. Tail of twelve broadly rounded feathers, rather long, almost even, the lateral feathers being only two twelfths of an inch shorter than the longest.

Bill and feet black, iris hazel. The general colour of the plumage is glossy bluish-black ; the smaller wing-coverts deep carmine, their lower row white.

Length to end of tail 9 inches ; bill along the ridge $\frac{11}{12}$; wing from flexure 5 ; tail $3\frac{7}{12}$; tarsus $1\frac{2\frac{1}{2}}{12}$; hind toe $\frac{6\frac{1}{2}}{12}$, its claw $\frac{7}{12}$; second toe $\frac{8}{12}$, its claw $\frac{4\frac{1}{2}}{12}$; third toe $\frac{10\frac{1}{2}}{12}$, its claw $\frac{5}{12}$; fourth toe $\frac{7\frac{1}{2}}{12}$ its claw $\frac{4}{12}$.

CRIMSON-WINGED TROOPIAL, OR RED-AND-BLACK-SHOULDERED MARSH BLACKBIRD.

AGELAIUS GUBERNATOR, *Wagler.*

PLATE CCXV.—MALE AND FEMALE.

Of this species, which appears to be abundant about the Columbia river, I have received two specimens from Mr. TOWNSEND, who procured them there. Having seen individuals from Mexico, I think it probable that it returns to that country to spend the winter. Of its habits however I regret that I am entirely ignorant

PSAROCOLIUS GUBERNATOR, Wagler, Syst. Avium.
CRIMSON-WINGED TROOPIAL, *Icterus gubernator*, Aud. Orn. Biog. vol. v. p. 211.

Male, 9 ; wing, $5\frac{7}{12}$.
California.
Adult Male.

Bill shorter than the head, conical, straight, stout, compressed toward the end, tapering to a fine point ; upper mandible with the dorsal line nearly

straight, being a little convex at the base, the ridge a little flattened toward the base, where it runs into a short tapering process, the sides rounded, the edges inflected, the tip slightly depressed; lower mandible higher at the base than the upper, with the angle rather short and wide, the sides rather flat and inclined inwards at the base, convex toward the end, the edges inflected, the tip acute; the gap-line straight, but at the base deflected. Nostrils oval, in the fore part of the short nasal depression.

Head of moderate size, ovate, with the forehead flattened; neck short; body moderately stout. Feet of ordinary length; tarsus rather stout, compressed, with seven large anterior scutella, of which the upper are blended, the two lateral plates meeting at an acute angle behind; toes rather large, compressed; the first much stronger, the outer a little shorter than the inner; claws large, arched, compressed, laterally grooved, very acute.

Plumage soft, blended, glossy, the feathers ovate and rounded; those on the fore and upper parts of the head standing erect, so as to present a velvety surface. Wings rather long, the second quill longest, but exceeding the third only by half a twelfth, the first shorter than the fourth; the secondaries broadly rounded; the second, third, fourth, and fifth primaries cut out on the outer web toward the end. Tail of twelve broadly rounded feathers, rather long, slightly rounded, the lateral feathers being two-twelfths shorter than the middle.

Bill and feet black. The general colour of the plumage is glossy bluish-black, on the head velvet-black; the smaller wing-coverts scarlet, at the base white.

Length to end of tail, 9 inches, bill along the ridge $\frac{10}{12}$; wing from flexure $5\frac{7}{12}$; tail $4\frac{1}{12}$; tarsus $1\frac{3}{12}$; hind toe $\frac{6}{12}$, its claw $\frac{7}{12}$; second toe $\frac{8}{12}$, its claw $\frac{4}{12}$; third toe $\frac{11}{12}$, its claw $\frac{5}{12}$; fourth toe $\frac{7}{12}$, its claw $\frac{4}{12}$.

Female.

The female, which is much smaller, has the bill and feet greyish-black; the upper parts are dark brown, the feathers edged with light brown; the smaller wing-coverts edged with dull scarlet, the first row with whitish; the larger coverts, the quills and tail-feathers blackish-brown, edged with yellowish-brown; the lower parts are dull brown, but the throat, and a broad streak over the eye are dull orange.

Red-winged Starling

1. Male Adult 2. Young Male 3 Female

Red Maple

Drawn from Nature by J.J.Audubon,F.R.S.F.L.S.

Lith.ª Printed & Col.ª by J.T.Bowen, Philad.ª

THE RED-WINGED STARLING, OR RED-SHOULDERED MARSH BLACKBIRD.

AGELAIUS PHŒNICEUS, *Linn.*

PLATE CCXVI.—MALE, FEMALE, AND YOUNG MALE.

If the name of *Starling* has been given to this well-known species, with the view of assimilating it to the European bird of that name, it can only have been on account of the numbers of individuals that associate together, for in every other respect it is as distinct from the true Starlings as a Common Crow. But without speaking particularly of generic or specific affinities, I shall here content myself with giving you, kind reader, an account of the habits of this bird.

The Marsh Blackbird is so well known as being a bird of the most nefarious propensities, that in the United States one can hardly mention its name without hearing such an account of its pilferings as might induce the young student of nature to conceive that it had been created for the purpose of annoying the farmer. That it destroys an astonishing quantity of corn, rice, and other kinds of grain, cannot be denied; but that before it commences its ravages, it has proved highly serviceable to the crops, is equally certain.

As soon as spring makes its appearance, almost all the Redwings leave the Southern States, in small detached and straggling flocks, the males leading the way in full song, as if to invite the females to follow. Prodigious numbers make their appearance in the Eastern Districts, as winter recedes, and are often seen while piles of drifted snow still remain along the roads, under shelter of the fences. They frequently alight on trees of moderate size, spread their tail, swell out their plumage, and utter their clear and not unmusical notes, particularly in the early morning, before their departure from the neighbourhood of the places in which they have roosted; for their migrations, you must know, are performed entirely during the day.

Their food at this season is almost exclusively composed of grubs, worms, caterpillars, and different sorts of coleopterous insects, which they procure by searching with great industry, in the meadows, the orchards, or the newly ploughed fields, walking with a graceful step, but much quicker than either of their relatives, the Purple Grakle or the Boat-tail of the Southern States. The millions of insects which the Redwings destroy at this early season, are, in my opinion, a full equivalent for the corn which they eat at another period;

and for this reason, the farmers do not molest them in spring, when they resort to the fields in immense numbers. They then follow the ploughman, in company with the Crow Blackbird, and as if aware of the benefit which they are conferring, do not seem to regard him with apprehension.

The females being all arrived, the pairing season at once commences. Several males are seen flying in pursuit of one, until becoming fatigued, she alights, receives the addresses of her suitors, and soon makes a choice that establishes her the consort of one of them. The "happy couple" immediately retire from the view of the crowds around them, and seek along the margins of some sequestered pond or damp meadow, for a place in which to form their nest. An alder bush or a thick tuft of rank weeds answer equally well, and in such places a quantity of coarse dried weeds is deposited by them, to form the exterior of the fabric which is to receive the eggs. The nest is lined with fine grasses, and, in some instances, with horse-hair. The eggs are from four to six in number, of a regular oval form, light blue, sparsely spotted with dusky.

Now is the time, good-natured reader, to see and admire the courage and fidelity of the male, whilst assiduously watching over his beloved mate. He dives headlong towards every intruder that approaches his nest, vociferating his fears and maledictions with great vehemence, passing at times within a few yards of the person who has disturbed his peace, or alighting on a twig close to his nest, and uttering a plaintive note, which might well prevent any other than a mischievous person from interfering with the hopes and happiness of the mated Redwings.

The eggs are hatched, and the first brood has taken flight. The young soon after associate with thousands of other striplings, and shift for themselves, whilst the parent birds raise a second family. The first brood comes abroad about the beginning of June, the second in the beginning of August. At this latter period, the corn in the Middle Districts has already acquired considerable consistence, and the congregated Redwings fall upon the fields in such astonishing numbers as to seem capable of completely veiling them under the shade of their wings. The husbandman, anxious to preserve as much of his corn as he can, for his own use or for market, pursues every possible method of annoyance or destruction. But his ingenuity is almost exerted in vain. The Redwings heed not his efforts further than to remove, after each report of his gun, from one portion of the field to another. All the *scarecrows* that he may choose to place about his grounds are merely regarded by the birds as so many *observatories*, on which they occasionally alight.

The corn becoming too hard for their bills, they now leave the fields, and resort to the meadows and the margins of streams thickly overgrown with

the *wild oat* and other grasses, upon the seeds of which they feed with great avidity during the autumnal and winter months. They then associate partially with Reed-birds, Grakles, and Cow-pen Buntings, and are seen to move from the Eastern to the Southern Districts, in such immense and thick flocks as almost to cloud the air.

The havoc made amongst them is scarcely credible. I have heard that upwards of fifty have been killed at a shot, and am the more inclined to believe such accounts as I have myself shot hundreds in the course of an afternoon, killing from ten to fifteen at every discharge. Whilst travelling in different parts of the Southern States, during the latter part of autumn, I have often seen the fences, trees, and fields so strewed with these birds, as to make me believe their number fully equal to that of the falling leaves of the trees in the places traversed by me.

Towards evening they alight in the marshes by millions, in compact bodies, settle on the reeds and rushes close above the water, and remain during the night, unless disturbed by the gunners. When this happens, they rise all of a sudden, and perform various evolutions in the air, now gliding low over the rushes, and again wheeling high above them, preserving silence for a while, but finally diving suddenly to the spot formerly chosen, and commencing a general chuckling noise, after which they remain quiet during the rest of the night.

Different species of Hawks derive their principal sustenance from them at this season. The Pigeon Hawk is an adept in picking the fattest from their crowded flocks; and while they are in the Southern States, where millions of them spend the winter, the Hen-harriers are seen continually hovering over them, and picking up the stragglers.

The Marsh Blackbird is easily kept in confinement, and sings there with as much vigour as when at full liberty. It is kept in good order with rice, wheat, or any other small grain. Attempts have been made to induce these birds to breed in confinement, but in as far as I have been able to ascertain, have failed. As an article of food, they are little better than the Starling of Europe, or the Crow Blackbird of the United States, although many are eaten and thought good by the country people, who make pot-pies of them.

The dispersion of this bird over the whole of the United States, the Fur Countries beyond the limits of the inhabitation of the human species, the great western plains, the Rocky Mountains, and even the shores of the Columbia river, where it was procured by Mr. TOWNSEND, forms a remarkable part of its history. Our surprise becomes greatly increased by the knowledge of its breeding in great numbers in every part of this vast extent. I found the Islands about Galveston Bay most plentifully supplied with it, as well as the grassy margins of the pools and bayous of the main-

land, where it was seen breeding, sometimes within a few yards of houses. The same occurred on the Florida Keys. The only part of the country visited by me in which I found it wanting is Labrador, although it is known to breed in some portions of the interior of Newfoundland. In many instances I found it nestling in the Floridas on Mangroves and low bushes, in the vicinity of the nests of Cormorants and our smaller Herons, and even sometimes in the midst of them.

In speaking of this species, Dr. RICHARDSON mentions a circumstance relative to its habits of which I was not aware. "On its first arrival (the beginning of May) it feeds on grubs; but as soon as the grain sown in the vicinity of the trading posts begins to germinate, it associates itself with Saffron-headed Maize-birds and Boat-tails (Common Crow Blackbird), and is occupied the whole day in tearing up and devouring the sprouting plants, returning to the work of devastation as often as driven away." He states that it does not pass the 57th parallel.

The attachment of this bird to the locality which it has selected for breeding, is illustrated by the following note of my friend Dr. THOMAS M. BREWER of Boston. "A pair of these birds constructed a nest in a small clump of bushes near a brook in Roxbury, and deposited four eggs, which were taken away. They then built a nest within a foot of the first, in which the same number of eggs was laid and in like manner abstracted. Undeterred by this want of success, they again constructed a nest in the same clump, and this time without molestation. This fact is perhaps trivial in itself, but the same can hardly be told of any other species." The eggs measure in length seven-eighths and three-fourths, and in breadth five and a half eighths.

At Galveston I observed flocks of female Red-winged Starlings congregated, and to all appearance migrating. This shows that migration in birds is far from being regular, but is dependent on many accidental circumstances, such as difference of temperature at certain seasons when they are supposed usually to move, or storms, or want of proper food.

Dr. BACHMAN writes thus to me:—"You speak of the Red-winged Starlings as nearly all proceeding to the coast to breed. They breed very abundantly in all the low marshy grounds of Carolina, and in all the intermediate places to the Northern States. The young birds in autumn that I have procured from the young guinea-corn and rice fields were fat, and in taste fully equal to the Robin. I am not aware, that you have mentioned that, when a year old, though not full plumaged, they breed like those that are older. Indeed, nearly all our birds breed when a year old, however imperfect their plumage; I cannot recollect any species that does not."

I have represented a male and a female in the adult state, and a male in the first spring, and have placed them on the branch of a *water maple*, these birds being fond of alighting on trees of that kind, in early spring, to pick

up the insects that frequent the blossoms. This tree is found dispersed throughout the United States, and grows, as its name indicates, in the immediate vicinity of water. Its wood is soft, and is hardly used for any other purpose than that of being converted into common domestic utensils.

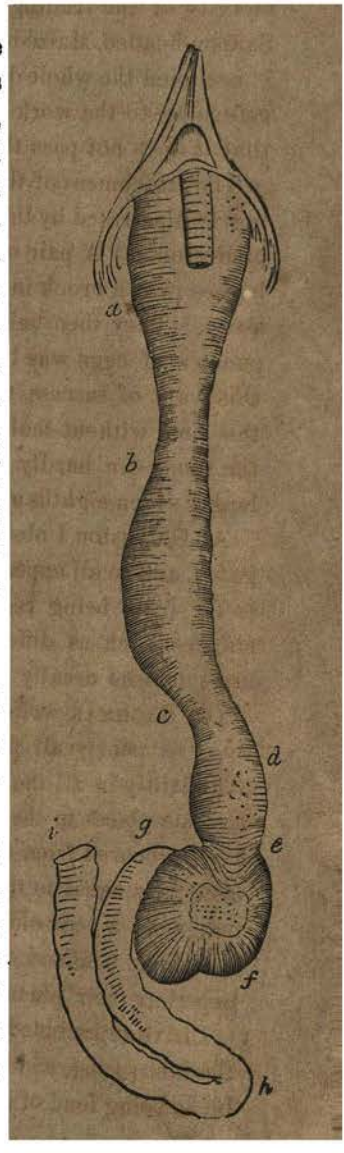
RED-WINGED STARLING, *Sturnus prædatorius*, Wils. Amer. Orn., vol. iv. p. 30.

ICTERUS PHŒNICEUS, Bonap. Syn., p. 52.

AGELAIUS PHŒNICEUS, *Red-winged Maize-bird*, Swains. and Rich. F. Bor. Amer., vol. ii. p. 280.

RED-WINGED BLACKBIRD, *Icterus phœniceus*, Nutt. Man., vol. i. p. 169.

RED-WINGED STARLING or MARSH BLACKBIRD, Aud. Orn. Biog., vol. i. p. 348; vol. v. p. 487.



Tail considerably rounded. Male with the plumage glossy black, the smaller wing-coverts scarlet, their first or posterior row buff-coloured, at the tip whitish. Female much smaller, with the upper parts dark brown, the feathers edged with light brown; some of the smaller wing-coverts tinged with red; wings and tail blackish-brown, the feathers margined with brownish-red, the first row of small coverts and secondary coverts narrowly tipped with whitish; a yellowish-brown band over the eye; lower parts longitudinally streaked with dusky and whitish, the fore neck strongly tinged with dull carmine. Young similar to the female, but without red on the small wing-coverts or throat, the latter part with the sides of the head being pale yellowish-brown.

Male, 9, 14. Female, 7½.

Breeds from Texas throughout the United States, and northward to the Saskatchewan. Vast numbers spend the winter in the Southern and Western States.

In a male preserved in spirits, the palate ascends rapidly, and is in the middle concave, with two very prominent papillate ridges, which, in meeting, form a large soft prominence, anteriorly of which the roof of the mouth is nearly flat, with a median and two lateral ridges. The posterior aperture of the nares is oblongo-linear,

with its margin papillate. The lower mandible is deeply concave. The tongue is 9 twelfths long, higher than broad, sagittate and papillate at the base, grooved above, tapering to a horny, flattened, slightly emarginate tip. The œsophagus, *a b c d e*, is 3¾ inches long, forming a sac, *b c*, the width of which at the commencement is 7½ twelfths, soon after 4½ twelfths, toward the lower part of the neck 5½ twelfths, but on entering the thorax contracting to 3½ twelfths; the proventriculus, *d e*, 4½ twelfths in width. The stomach, *e f g*, is broadly elliptical, 9 twelfths long, 7½ twelfths wide, its lateral muscles well developed; the epithelium thin, but dense, and of a reddish-brown colour. The contents of the stomach are remains of coleopterous insects and seeds. The duodenum, *g h i*, curves in the usual manner at the distance of 1¼ inches; the entire length of the intestine is 10 inches, its width from 2 twelfths to 1½ twelfths; the cœca 2 twelfths long, ½ twelfth wide, 1 inch distant from the extremity; the rectum gradually dilates into an oblong cloaca, 5 twelfths in width.

The Red Maple or Swamp Maple.

Acer rubrum, *Willd.*, Sp. Pl., vol. iv. p. 984. *Pursh*, Flor. Amer., vol. i. p. 266. *Mich.* Arbr. Forest. de l'Amer. Sept., vol. ii. p. 210, pl. 14.—Octandria Monogynia, *Linn.*—Acerinæ, *Juss.*

Genus IV.—ICTERUS, *Briss.* HANG-NEST.

Bill a little shorter than the head, conical, very slightly decurved, compressed, tapering to a very attenuated point; upper mandible with the dorsal line almost straight, being very slightly convex, the ridge indistinct, narrowed at the base; the sides convex, the edges overlapping, the tip extremely sharp; gap-line ascending at the base, afterwards direct; lower mandible with the angle long and of moderate width, the dorsal line and that of the crura slightly concave, the sides erect at the base, convex towards the end, the edges slightly inflected, the tip extremely slender. Nostrils basal, elliptical, with a small operculum. Head ovate, of moderate size; neck

Baltimore Oriole, or Hang-nest.

1. Male Adult 2. Young Male 3. Female.

Tulip Tree.

Drawn from Nature by J.J.Audubon F.R.S.F.L.S. Lith.d Printed & Col.d by J. T. Bowen, Philad.a

short; body rather slender. Feet of moderate length, rather stout; tarsus much compressed, with seven anterior scutella; toes of moderate size, the hind toe much stronger, the lateral about equal, the third and fourth united at the base. Claws rather long, moderately arched, much compressed, laterally grooved, very acute. Plumage soft and blended. Wings of moderate length, with the outer four quills nearly equal. Tail of moderate length, rounded, and slightly emarginate. Roof of the upper mandible with a broad median ridge, somewhat prominent at the base; tongue tapering to a deeply slit point; œsophagus wide, considerably dilated about the middle; stomach elliptical; intestine short, and of moderate width; cœca very small; cloaca globular.

THE BALTIMORE ORIOLE, OR HANG-NEST.

ICTERUS BALTIMORE, *Linn.*

PLATE CCXVII.—MALE, YOUNG MALE, FEMALE AND NEST.

No traveller who is at all gifted with the faculty of observation, can ascend that extraordinary river, the Mississippi, in the first days of autumn, without feeling enchanted by the varied vegetation which adorns its alluvial shores:—The tall *cotton-tree* descending to the very margin of the stream, the arrow-shaped *ash* mixing its branches with those of the *pecan* and *black walnut*, immense *oaks* and numerous species of *hickory*, covering with their foliage the densely tangled *canes*, from amongst which, at every step, *vines* of various kinds shoot up, winding round the stems and interlacing their twigs and tendrils, stretching from one branch to another, until they have reached and overspread the whole, like a verdant canopy, forming one solid mass of richest vegetation, in the foreground of the picture; whilst, wherever the hills are in view, the great *magnolias*, the *hollies*, and the noble *pines* are seen gently waving their lofty heads to the breeze.

The current becomes rapid, and ere long several of the windings of the great stream have been met and passed, and with these new scenes present themselves to the view. The forest at this place, as if in doleful mourning at the sight of the havoc made on its margin by the impetuous and regardless waters, has thrown over her a ragged veil, produced by the long dangling

masses that spread from branch to branch over the cypress trees. The dejected Indian's camp lies in your sight. He casts a melancholy glance over the scene, and remembers that he is no longer the peaceful and sole possessor of the land. Islands, one after another, come in sight, and at every winding of the stream you see boats propelled by steam ascending the river, and others, without such aid, silently gliding with the current.

Much might the traveller find to occupy his mind, and lead him into speculations regarding the past, the present, and the future, were he not attracted by the clear mellow notes that issue from the woods, and gratified by the sight of the brilliant Oriole now before you. In solitudes like these, the traveller might feel pleased with any sound, even the howl of the wolf, or the still more dismal bellow of the alligator. Then how delightful must it be to hear the melody resulting from thousands of musical voices that come from some neighbouring tree, and which insensibly leads the mind, with whatever it may previously have been occupied, first to the contemplation of the wonders of nature, and then to that of the Great Creator himself.

Now we have ascended the mighty river, have left it, and entered the still more enchanting Ohio, and yet never for a day have we been without the company of the Oriole. Here, amongst the pendulous branches of the lofty *tulip-trees*, it moves gracefully up and down, seeking in the expanding leaves and opening blossoms the caterpillar and the green beetle, which generally contribute to its food. Well, reader, it was one of these pendulous twigs which I took when I made the drawing before you. But instead of having cut it on the banks of the Ohio, I found it in the State of Louisiana, to which we shall return.

The Baltimore Oriole arrives from the south, perhaps from Mexico, or perhaps from a more distant region, and enters Louisiana as soon as spring commences there. It approaches the planter's house, and searches amongst the surrounding trees for a suitable place in which to settle for the season. It prefers, I believe, the trees that grow on the sides of a gentle declivity. The choice of a twig being made, the male Oriole becomes extremely conspicuous. He flies to the ground, searches for the longest and driest filaments of the moss, which in that State is known by the name of *Spanish beard*, and whenever he finds one fit for his purpose, ascends to the favourite spot where the nest is to be, uttering all the while a continued chirrup, which seems to imply that he knows no fear, but on the contrary fancies himself the acknowledged king of the woods. This sort of chirruping becomes louder, and is emitted in an angry tone, whenever an enemy approaches, or the bird is accidentally surprised; the sight of a cat or a dog being always likely to produce it. No sooner does he reach the branches, than with bill and claws, aided by an astonishing sagacity, he fastens one end of the moss

to a twig, with as much art as a sailor might do, and takes up the other end, which he secures also, but to another twig a few inches off, leaving the thread floating in the air like a swing, the curve of which is perhaps seven or eight inches from the twigs. The female comes to his assistance with another filament of moss, or perhaps some cotton thread, or other fibrous substance, inspects the work which her mate has done, and immediately commences her operations, placing each thread in a contrary direction to those arranged by her lordly mate, and making the whole cross and recross, so as to form an irregular net-work. Their love increases daily as they see the graceful fabric approaching perfection, until their conjugal affection and faith become as complete as in any species of birds with which I am acquainted.

The nest has now been woven from the bottom to the top, and so secured that no tempest can carry it off without breaking the branch to which it is suspended. Remark what follows. This nest contains no warming substance, such as wool, cotton, or cloth, but is almost entirely composed of the Spanish moss, interwoven in such a manner that the air can easily pass through it. The parents no doubt are aware of the intense heat which will exist ere long in this part of the world, and moreover take especial care to place their nest on the north-east side of the trees. On the contrary, had they gone as far as Pennsylvania or New York, they would have formed it of the warmest and softest materials, and have placed it in a position which would have left it exposed to the sun's rays; the changes in the weather during the early period of incubation being sometimes so great there, that the bird looks on these precautions as necessary to ensure the life of its brood against intense cold, should it come, while it knows that the heat in these northern latitudes will not be so great as to incommode them. I have observed these sensible differences in the formation and position of the nests of the Baltimore Oriole, a great many times, as no doubt have other persons. The female lays from four to six eggs, and in Louisiana frequently rears two broods in a season. The period of incubation is fourteen days. The eggs are about an inch in length, rather broadly ovate, pale brown, dotted, spotted, and tortuously lined with dark brown.

The movements of these birds as they run among the branches of trees differ materially from those of almost all others. They cling frequently by the feet in order to reach an insect at such a distance from them as to require the full extension of the neck, body, and legs, without letting go their hold. They sometimes glide, as it were, along a small twig, and at other times move sidewise for a few steps. Their motions are elegant and stately. Their song consists of three or four, or at most eight or ten, loud, full, and mellow notes, extremely agreeable to the ear.

A day or two before the young are quite able to leave the nest, they often

cling to the outside, and creep in and out of it like young Woodpeckers After leaving the nest, they follow the parents for nearly a fortnight, and are fed by them. As soon as the mulberries and figs become ripe, they resort to these fruits, and are equally fond of sweet cherries, strawberries, and others. During spring, their principal food is insects, which they seldom pursue on the wing, but which they search for with great activity, among the leaves and branches. I have seen the young of the first brood out early in May, and of the second in July. As soon as they are fully able to take care of themselves, they generally part from each other, and leave the country, as their parents had come, that is, singly.

During migration, the flight of the Baltimore Oriole is performed high above all the trees, and mostly during day, as I have usually observed them alighting, always singly, about the setting of the sun, uttering a note or two, and darting into the lower branches to feed, and afterwards to rest. To assure myself of this mode of travelling by day, I marked the place where a beautiful male had perched one evening, and on going to the spot next morning, long before dawn, I had the pleasure of hearing his first notes as light appeared, and saw him search awhile for food, and afterwards mount in the air, making his way to warmer climes. Their flight is straight and continuous.

This beautiful bird is easily kept in cages, and may be fed on dried figs, raisins, hard-boiled eggs, and insects. When shot they will often clench the twig so firmly as to remain hanging fast to it until dislodged by another shot or a blow against the twig.

The Baltimore Oriole, although found throughout the Union, is so partial to particular sections or districts, that of two places not twenty miles distant from each other, while none are to be seen in the one, a dozen pairs or more may be in the neighbourhood of the other. They are fondest of hilly grounds, refreshed by streams.

According to Dr. RICHARDSON this species ranges through the central districts of the Fur Countries up to the 55th degree of latitude, arriving on the Saskatchewan plains on the 10th of May. At this period I saw it breeding and abundant in the Texas; but none were observed by me in Labrador or Newfoundland. I have ascertained to my perfect satisfaction, that the males of this elegant species obtain the full beauty of their plumage before the first winter after their birth, having seen several individuals taken from the nest and reared in aviaries acquire their full plumage by the end of September. They feed kindly and breed well in a state of confinement, taking great care of their young.

In the wild state I have frequently seen these birds feed on those beautiful green coleopterous insects called "May-bugs," but they seldom eat them in

confinement. I have seen one reared from the nest so gentle as to follow and come to its owner, whenever he called to it. They do not breed in the lower parts of South Carolina, but are found not unfrequently breeding at the distance of a hundred miles from the sea-coast of that State. It is not uncommon in Nova Scotia.

It will be seen from the above that WILSON and all who have copied him have erred in alleging, that the males of this species do not acquire their full plumage until the third year.

The eggs average seven and a half eighths in length, and five and three-fourths in their greatest breadth. They are rather pointed at the smaller end.

BALTIMORE ORIOLE, *Oriolus Baltimore*, Wils. Amer. Orn., vol. i. p. 23.
ICTERUS BALTIMORE, Bonap. Syn., p. 51.
BALTIMORE ORIOLE or GOLDEN ROBIN, *Icterus Baltimore*, Nutt. Man., vol. i. p. 152.
BALTIMORE ORIOLE, *Icterus Baltimore*, Aud. Orn. Biog., vol. i. p. 66; vol. v. p. 278.

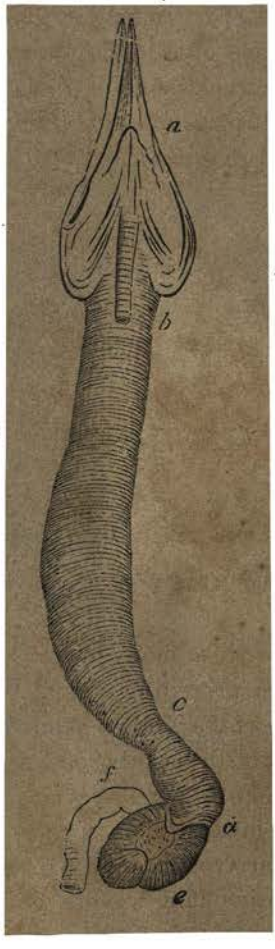
Second and third quills longest, fourth longer than first; tail slightly rounded. Male with the head, throat, sides, and hind part of the neck, with the fore part of the back, black; lower parts, rump, upper tail-coverts, and smaller wing-coverts rich orange, passing into orange-red on the breast; wings black, the secondary coverts largly tipped, and the quills margined with white; tail black, all the feathers tipped with rich yellow, the outer for half their length, the middle on a very small space. Female considerably smaller, with the upper part of the head, hind neck, sides of the neck at the middle, and anterior half of the back, brownish-black, the feathers edged with dull yellowish-green; hind part of the back light brownish-yellow, purer on the rump; tail yellowish-brown, the middle feathers darker; wing-coverts blackish-brown, quills dark brown, all margined with whitish; first row of small coverts and secondary coverts largely tipped with white; loral space, a band over the eye, and another beneath it, dull yellow; below the latter the cheeks spotted with dusky; lower parts yellowish-orange, duller than in the male, paler behind; some dusky streaks on the throat. Young similar to the female, but with the upper parts brownish-yellow, the head and back faintly spotted with dusky.

Male, 7¾, 12. Female, 7, 11.

In summer dispersed over the United States, to Nova Scotia. Columbia river. Texas. Abundant. Migratory.

A male preserved in spirits presents the following characters. The palate ascends anteriorly, and has two prominent soft ridges, at the anterior extremity of which is a slight protuberance, analogous to that of the Buntings, but only rudimentary or less developed; beyond it is a median broad ridge gradually tapering to the point. The posterior aperture of the

nares is linear, margined with pointed papillæ. The tongue is 6 twelfths long, emarginate and papillate at the base, slightly grooved above, horny in the greater part of its length, and tapering to a deeply slit point. The œsophagus, *a b c*, is 2 inches 5 twelfths long; at the upper part its diameter is about 4 twelfths; it passes along the right side of the neck, forming an elongated dilatation, of which the greatest breadth is 6 twelfths; and on entering the thorax, *a b c*, contracts to 3 twelfths. The proventriculus, *c d*, is 3½ twelfths in breadth. The stomach, *d e*, is an oblong gizzard, 7 twelfths long, 5 twelfths broad, situated obliquely, its fundus being directed toward the right side. The lateral muscles are moderately developed; the epithelium longitudinally rugous, tough, and of a reddish-brown colour. The contents of the stomach are remains of insects. The intestine is short and of moderate width, being 7½ inches long, its diameter in the duodenal portion 2½ twelfths. The cœca, which come off at the distance of 10 twelfths from the extremity, are very small, 2 twelfths long, ½ twelfth in width. The cloaca is globular, and 7 twelfths in diameter.



The trachea is 1 inch 10 twelfths long, its breadth anteriorly 1½ twelfths, at the lower part 1 twelfth. The rings, about 70, are well ossified, and considerably flattened. The inferior larynx has four pairs of muscles besides the sterno-tracheal. The bronchi have about 12 half rings.

In another individual the intestine is 7 inches 9 twelfths long. The contents of the stomach are remains of insects and particles of quartz.

The Tulip Tree.

Liriodendron tulipifera, *Willd.*, Sp. Plant., vol. ii. p. 1254. *Pursh*, Flora Americ., p. 332. *Mich.*, Abr. Forest. de l'Amer. Sept., t. iii. p. 202, pl. 5.—Polyandria Polygynia, *Linn.*—Magnoliæ, *Juss.*

This tree is one of the most beautiful of those indigenous to the United States, and attains a height of seventy, eighty, or even a hundred feet. The flowers are yellow and bright red, mixed with green, and upwards of three

Bullock's Troopial.

1. Male Adult. 2 Young Male. 3 Female

Caprifolium flavum.

Drawn from Nature by J. J. Audubon, F.R.S. F.L.S.

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inches in diameter. The leaves are ovate at the base, truncato-bilobate at the end, with one or two lobes on each side, all the lobes acuminate. It is generally distributed, but prefers rich soils. Its bark is smooth on the branches, cracked and fissured on the stems. The wood is yellow, hard, but easily wrought, and is employed for numerous purposes, particularly in the construction of houses, and for charcoal. The Indians often form their canoes of it, for which purpose it is well adapted, the trunk being of great length and diameter, and the wood light. In different parts of the United States, it receives the names of *poplar*, *white wood*, and *cane wood*.

BULLOCK'S TROOPIAL, ORIOLE, OR HANG-NEST.

ICTERUS BULLOCKII *Swains.*

PLATE CCXVIII.—MALE, FEMALE, AND YOUNG MALE.

According to Mr. NUTTALL, who has favoured me with so many observations relative to the birds described in this and the preceding volumes, "BULLOCK'S Oriole occurs in nearly the same localities as the Yellow-headed Troopial. About fifty or sixty miles to the north-west of the usual crossing-place of that branch of the La Platte called Larimie's Fork, we observed it making a nest quite similar to that of the Baltimore-bird. This species, which I have since seen in upper California, where it arrives (around Santa Barbara) in the beginning of May, has the same plaintive fifing warble, but more brief and less varied. The males also, as usual, arrive in flocks considerably before the females. They have likewise the same habit of concealing themselves for a length of time, carefully gleaning for small larvæ, or sipping the nectareous juices of the opening blossoms of the trees they delight to frequent. On the Platte, the only trees they can resort to are the *balsam poplars*, which border the stream. In all respects this species resembles the Common Baltimore-bird, which it supersedes from the first great bifurcation of the Platte, to the shores of the Columbia, extending at least as far as the borders of Old California. Mr. BULLOCK, its discoverer, also met with it throughout the table-land of Mexico."

Since the above notice was transmitted to me, I have received another

from Mr. TOWNSEND. He says, "it inhabits the Rocky Mountains near the Black Hills and the forests of the Columbia river. In the latter place it is a rather plentiful species. Its usual note consists of a single quavering call somewhat like one of the notes of the Scarlet Tanager, *Tanagra rubra*. At other times it warbles a little, but not with half the sweetness or compass of its near relative the Baltimore. It is a very active species, so much so indeed that it is very difficult to get a shot at it while sitting, but it is easily killed on the wing. It evidently breeds here, and has probably now a nest (June 17th), but I have not been able to find it. The female is rarely seen, and is particularly shy and noiseless."

XANTHORNUS BULLOCKII, Swains. Syn. of Mex. Birds, Phil. Mag. 1827, p. 436.
BULLOCK'S TROOPIAL, *Icterus Bullockii*, Aud. Orn. Biog., vol. v. p. 9.

Male, 7¼, wing, 4 1/2.
Rocky Mountains, Columbia river, and California. Common. Migratory.
Adult Male.

Bill a little shorter than the head, conical, very slightly decurved, compressed, tapering to a very attenuated point; upper mandible with the dorsal line almost straight, being very slightly convex, the ridge narrow, its basal extremity tapering, the sides convex, the edges overlapping, the tip extremely sharp; lower mandible with the angle long and of moderate width, the dorsal line and that of the crura slightly concave, the sides erect and nearly flat at the base, convex toward the end, the edges slightly inflected, the tip extremely slender; gap-line straight, declinate at the base. Nostrils elliptical, with a small operculum above, in the fore part of the nasal membrane, half-way between the ridge and the margin.

Head ovate, of moderate size; neck short; body rather slender. Feet of moderate length, rather stout; tarsus much compressed, with seven large anterior scutella, and two longitudinal plates behind forming a very thin edge; toes of moderate size, the hind toe much stronger, the lateral about equal, the third and fourth united at the base. Claws rather long, moderately arched, much compressed, laterally grooved, very acute.

Plumage soft and blended, the feathers ovate and rounded. Wings of moderate length, the first four quills nearly of equal length, the first being scarcely two-twelfths shorter than the second, which is the longest, but scarcely exceeds the third. Tail rather long, straight, rounded and slightly emarginate, the middle feathers being one-twelfth, and the lateral three-twelfths shorter than the longest.

Bill greyish-blue, dusky along the ridge; feet and claws light blue. The upper part of the head, the hind neck, and the anterior portion of the back,

with the loral space, some feathers at the base of the lower mandible, and a rather narrow longitudinal band on the fore neck, deep black; the anterior part of the forehead, a band over the eye, the cheeks, sides of the neck, and the breast, rich orange-yellow; the rest of the lower parts paler; the lower wing-coverts and the anterior edge of the wing pale yellow; the hind part of the back and the upper tail coverts yellow, tinged with olive, purer on the rump; wings brownish-black, with a large patch of white formed by the outer small coverts and the edges of the secondary coverts, besides which the quills are all margined externally with white, the secondaries more broadly. The four middle tail-feathers are black, all the rest orange-yellow, with a dusky patch near the end, broader on the inner, narrower and fainter on the outer.

Length to end of tail $7\frac{1}{4}$ inches; bill along the ridge $\frac{9}{12}$; wing from flexure $4\frac{1}{12}$; tail $3\frac{5}{12}$; tarsus $\frac{10}{12}$; hind toe $\frac{4}{12}$, its claw $\frac{4}{12}$; second toe $\frac{5}{12}$, its claw $\frac{3}{12}$; third toe $\frac{7}{12}$, its claw $\frac{4}{12}$; fourth toe $\frac{5}{12}$, its claw $\frac{2}{12}$.

Adult Female.

The female is smaller and differs greatly in colouring. The bill and feet are as in the male. The upper parts are greyish-olive, lighter on the rump, on the head and upper tail-coverts tinged with yellow; the loral space dusky, the anterior part of the forehead, a band over the eye, the cheeks, and sides of the neck, with the fore part of the breast, light greenish-yellow; the throat dull white, the lower wing-coverts and edge of the wing very pale yellow, the rest of the lower parts greyish-white, slightly tinged with olive. The wings are dark brown, the larger small-coverts tipped with greyish-white, the secondary coverts and quills edged with the same. The tail dull olivaceous-yellow. This description is taken from an individual killed on the 21st of June, 1836, on the Columbia river.

Length to end of tail 7 inches.

Young Male.

A young male, killed on the Columbia river, on the 21st of June, 1836, and in its first plumage, resembles the female in all the upper parts, including the tail, of which the four outer feathers, however, are more yellow. The loral space, and a streak on the throat, shorter and narrower than in the old male, are black; the band on the eye, the cheeks, the fore neck, and part of the breast, pale yellow; the rest of the lower parts as in the female.

THE ORCHARD ORIOLE, OR HANG-NEST.

ICTERUS SPURIUS, *Gmel.*

PLATE CCXIX.—MALE, YOUNG MALE, FEMALE AND NEST.

The plumage of many species of our birds undergoes at times very extraordinary changes. Some, such as the male Tanagers, which during the summer months exhibit the most vivid scarlet and velvet black, assume a dingy green before they leave the country, on their way southward. The Goldfinch nearly changes to the same colour, after having been seen in a gay apparel of yellow and black. The Rice-bird loses its lively brightness until the return of spring. Others take several years before they complete their plumage, so as to show the true place which they hold amongst the other species, as is the case with the Ibis, the Flamingo, and many other Waders, as well as with several of our land birds, among which, kind reader, the species now under your consideration is probably that in which these gradual improvements are most observable by such persons as reside in the country inhabited by them.

The plumage of the young birds of this species, when they leave the nest, resembles that of the female parent, although rather less decided in point of colouring, and both males and females retain this colour until the approach of the following spring, when the former exhibit a portion of black on the chin, the females never altering. In birds kept in cages, this portion of black remains without farther augmentation for two years; but in those which are at liberty, a curious mixture of dull orange or deep chestnut peeps out through a considerable increase of black-coloured feathers over the body and wings, intermixed with the yellowish-green hue which the bird had when it left the nest. The third spring brings him nearer towards perfection, as at that time the deep chestnut colour has taken possession of the lower parts, the black has deepened on the upper parts, and over the whole head, as well as on the wings and tail-feathers. Yet the garb with which it is ultimately to be covered requires another return of spring before it is completed, after which it remains as exhibited in the adult male, represented in the plate.

These extraordinary changes are quite sufficient of themselves to lead naturalists abroad into error, as they give rise to singular arguments even with some persons in America, who maintain that the differences of colour

Orchard Oriole or Hang nest.

1. Male adult. 2 Young Male. 3 Female & Nest.

Honey Locust.

Drawn from Nature by J.J.Audubon.F.R.S.F.L.S.

Lith.d Printed & Col.d by J. T. Bowen Philad.a

are indicative of different species. But, since the *habits* of these birds under all these singular changes of plumage are ascertained to be precisely the same, the argument no longer holds good. I shall now endeavour to describe these habits with all the accuracy supplied by long observation.

The migration of the Orchard Oriole from south to north is performed by day, and singly, as is that of its relative the Baltimore Oriole, the males appearing a week or ten days sooner than the females. Their flight is lower than that of the Baltimore, and considerably shorter in its continuance, the Orchard Oriole alighting more frequently on the tops of the trees, to rest or to feed. They exhibit a greater repetition of motions of the wings, although sliding through the air for a few yards only at a time, and whilst about to alight, as well as afterwards, perform strong and well marked jettings of the tail. This the Baltimore seldom does. No sooner have they reached the portion of the country in which they intend to remain during the time of raising their young, than these birds exhibit all the liveliness and vivacity belonging to their nature. The male is seen rising in the air for ten or twenty yards in an indirect manner, jerking his tail and body, flapping his wings, and singing with remarkable impetuosity, as if under the influence of haste, and anxious to return to the tree from which he has departed. He accordingly descends with the same motions of the body and tail, repeating his pleasant song as he alights. These gambols and carollings are performed frequently during the day, the intervals being employed in ascending or decending along the branches and twigs of different trees, in search of insects or larvæ. In doing this, they rise on their legs, seldom without jetting the tail, stretch their neck, seize the prey, and emit a single note, which is sweet and mellow, although in power much inferior to that of the Baltimore. At other times, it is seen bending its body downwards, in a curved posture, with the head greatly inclined upwards, to peep at the under parts of the leaves, so as not to suffer any grub to escape its vigilance. It now alights on the ground, where it has espied a crawling insect, and again flies towards the blossoms, in which many are lurking, and devours hundreds of them each day, thus contributing to secure to the farmer the hopes which he has of the productiveness of his orchard.

The arrival of the females is marked with all due regard, and the males immediately use every effort in their power to procure from them a return of attention. Their singings and tricks are performed with redoubled ardour, until they are paired, when nidification is attended to with the utmost activity. They resort to the meadows, or search along the fences for the finest, longest, and toughest grasses they can find, and having previously fixed on a spot either on an *apple tree*, or amidst the drooping branches of the *weeping willow*, they begin by attaching the grass firmly and neatly to

the twigs more immediately around the chosen place. The filaments are twisted, passed over and under, and interwoven in such a manner as almost to defy the eye of man to follow their windings. All this is done by the bill of the bird, in a manner used by the Baltimore Oriole. The nest is of a hemispherical form, and is supported by the margin only. It seldom exceeds three or four inches in depth, is open almost to the full extent of its largest diameter at the top or entrance, and finished on all sides, as well as within, with the long slender grasses already mentioned. Some of these go round the nest several times, as if coarsely woven together. This is the manner in which the nest is constructed in Louisiana; in the Middle Districts it is usually lined with soft and warm materials. The female lays from four to six eggs, of a bluish-white tint, sprinkled with dark brown, and raises only a single brood in the season. The young follow the parents for several weeks, and many birds congregate towards autumn, but the males soon separate from the females, and set out by themselves as they arrived in spring.

The sociality of the Orchard Oriole is quite remarkable, and in this respect that bird differs widely from the Baltimore, which will not suffer any other bird of its species to build a nest, or to remain within a considerable distance from the spot which it has selected for its own; whereas many nests of the species now before you may be observed in the same garden or orchard, and often within a few yards of the house. I have counted as many as nine of these nests on a few acres of ground, and the different pairs to which they belonged lived in great harmony.

Although the food of the Orchard Orioles consists principally of insects of various kinds, it is not exclusively composed of them. They are fond of different sorts of fruits and berries. Figs are also much relished by them, as well as mulberries and strawberries, but not to such a degree as to draw the attention of the gardener or husbandman towards their depredations.

This species makes its first appearance in Louisiana early in March, and remains until October, being seen for several weeks after the Baltimore Oriole has set out. It reaches the Middle Districts in the beginning of April. I have met with it as far as the State of Maine and the head waters of the Mississippi. It is fond of high ground and the neighbourhood of mountains during the breeding season, after which it removes to the meadows and prairies in considerable numbers. Whilst in these meadows, it feeds principally upon a small species of cricket, ground spiders and small grasshoppers. Their flesh is very good late in the season, and is much esteemed by the Creoles of Louisiana.

The French of that State give it the name of *Pape de Prairie*, while they designate the Baltimore Oriole by that of *Pape de Bois*, which arises no

doubt from the marked preference which the former manifests to the plains in autumn, where a great number are shot or caught in trap cages. It is easily kept in cages, where it sings with all the liveliness which it shews in its wild state, and may be fed on rice and dry fruits, when fresh ones cannot be procured. I have known one of these birds, a beautiful male, kept for upwards of four years by a friend of mine at New Orleans. It had been raised from the nest, and having passed through the different changes of its plumage, had become perfect, was full of action, and sung delightfully.

The nest represented in the plate was drawn in Louisiana, and was entirely composed of grass. It may be looked upon as a sample of the usual form and construction. The branch of *honey locust* on which you see these birds belongs to a tree which sometimes grows to a great height, without much apparent choice of situation. It is more abundant to the west of the Alleghanies, and towards the Southern Districts, than in the Middle States. The wood is brittle and seldom used. The trunk and branches are frequently covered with innumerable long, sharp, and extremely hard spines, protruded in every direction, and in some instances placed so near to each other as to preclude the possibility of any person's climbing them. It bears a long pod, containing a sweet substance, not unlike that of the honey of bees, and which is eaten by children, when it becomes quite ripe. The spines are made use of by tobacconists for the purpose of fastening together the different twists of their rolls.

Dr. BACHMAN informs me, that he has kept this bird in aviaries for several years, and that although the birds of this genus are supposed to be of a plain colour in winter, he has ascertained that this species at least preserves throughout the winter the plumage it possessed in summer.

In a male preserved in spirits, the roof of the mouth is slightly ascending, with two longitudinal ridges; the posterior aperture of the nares oblongo-linear, with the edges papillate; the upper mandible with three prominent lines, and four grooves; the tongue is 6 twelfths long, sagittate and papillate at the base, narrow, channelled above, the tip deeply slit and lacerated. The œsophagus is 2 inches 2 twelfths long, its greatest breadth 3 twelfths. The stomach is very small, roundish, compressed, 5 twelfths long, $\frac{1}{2}$ twelfth broad; its muscles thick, the epithelium thin, tough, longitudinally rugous, reddish-brown. The contents of the stomach are insects. The intestine is 6 inches long, from $1\frac{1}{2}$ twelfths to 1 twelfth in breadth. The cœca 1 twelfth long, $\frac{1}{4}$ twelfth broad, 8 twelfths from the extremity.

The trachea is $1\frac{1}{4}$ inches long, much flattened, 1 twelfth broad at the upper part; its rings 65, with 2 dimidiate. Bronchi of about 10 half rings. The muscles as in the other species of this group.

Orchard Oriole, *Oriolus mutatus*, Wils. Amer. Orn., vol. i. p. 64.
Icterus spurius, Bonap. Syn., p. 51.
Spurious or Orchard Oriole, *Icterus spurius*, Nutt. Man., vol. i. p. 465.
Orchard Oriole, *Icterus spurius*, Aud. Orn. Biog., vol. i. p. 221; vol. v. p. 485.

Male, 6½, 9.

From Texas to Connecticut, over the valley of the Mississippi, Kentucky, and Ohio. Abundant. Rare in Massachusetts and Maine. Missouri to the bases of the Rocky Mountains. Migratory.

Male in complete plumage.

Bill conical, slender, longish, compressed, a little curved, very acute, with inflected acute margins; upper mandible obtuse above, lower broadly obtuse beneath. Nostrils oval, covered by a membrane above, basal. Head and neck of ordinary size. Body rather slender. Feet of ordinary length; tarsus a little longer than the middle toe; inner toe little shorter than the outer; claws arched, compressed, acute, that of the hind toe twice the size of the others.

Plumage soft, blended, glossy. Wings of ordinary length, the second and third primaries longest. Tail long, rounded, of twelve rounded feathers.

Bill black above, with light blue margins, light blue beneath. Iris reddish-brown. Feet light blue. Head, neck, and upper back black; the rest of the body dusky orange-red, approaching to chestnut. Quills and larger coverts black, margined with yellow, the latter tipped with yellowish-white; tail black.

Length 6½ inches, extent of wings 9; bill along the ridge $\frac{7}{12}$, along the gap $\frac{3}{4}$; tarsus 1, middle toe $\frac{5}{8}$.

Adult Female.

Bill, feet and iris as in the male. Head and upper parts brownish-green. Wings and tail greenish-brown; wing-coverts tipped with white; throat white, sides of the neck and under parts generally greyish-yellow. The young of both sexes resemble the female.

Male in the second year.

Irregularly spotted with black, yellow, and reddish-orange on the head, neck, and back; the other parts nearly as in the adult male.

The Honey Locust.

Gleditschia triacanthos, *Willd.*, Sp. Pl., vol. iv. p. 1097. *Pursh*, Flor. Amer., vol. i. p. 221. *Mich.*, Arbr. Forest., vol. iii. p. 164, pl. 10.—Polygamia Dioecia, *Linn.*—Leguminosæ, *Juss.*

This tree, when growing in situations most favourable to it, sometimes

attains a height of sixty or eighty feet, and a diameter of three or four. The bark is detached in large plates, and the trunk is marked with several broad furrows. The flowers, which are small and of a greenish colour, are succeeded by long, flat, pendent, generally tortuous pods, of a brown colour. The wood is very hard, but porous and brittle. This species is distinguished by its numerous, generally tripartite spines, its linear-oblong leaflets, and its many-seeded, compressed legumes.

Genus V.—QUISCALUS, *Vieill.* CROW-BLACKBIRD

Bill as long as the head, or somewhat longer, nearly straight, strong, tapering, compressed from the base; upper mandible with its outline slightly declinate, a little convex, the ridge narrow at the base and encroaching a little on the forehead, afterwards broad; rounded and indistinct, the sides convex, the edges sharp and direct, or slightly inflected, with a faint festoon anterior to the nostrils, the tip deflected, acute; lower mandible with the angle short and rounded, the dorsal line straight, slightly deflected at the end, the ridge convex, the sides rounded, the edges inflected, the tip very acute. Nostrils basal, oval, half-closed by a membrane. Head of moderate size, ovate, flattened above; neck of moderate length; body rather slender. Feet of moderate length; tarsus as long as the middle toe and claw, compressed, with eight anterior scutella; toes rather long, with large scutella, the hind toe stronger, the lateral toes nearly equal, the middle toe much longer. Claws rather long, slightly arched, compressed, not laterally grooved, acute. Plumage blended, highly glossed. Wings of moderate length, the second and third quills longest, the first and fourth little shorter. Tail long, graduated or rounded, the feathers flat or slightly concave, slightly emarginate, with the inner webs longer than the outer. Roof of the upper mandible concave, with three longitudinal ridges, of which the middle is enlarged at the base and prominent; tongue slender, sagittate, concave above, tapering to a thin lacerated point; œsophagus rather wide, considerably dilated about the middle; stomach of moderate size, elliptical or roundish, moderately muscular, the lateral muscles distinct, the epithelium dense, horny, slightly rugous, with two roundish grinding surfaces; intestine of moderate length, rather wide; cœca very small; cloaca oblong.

THE BOAT-TAILED GRAKLE, OR GREAT CROW BLACKBIRD.

QUISCALUS MAJOR. *Vieill.*

PLATE CCXX.—MALE AND FEMALE.

This elegant bird is an inhabitant of the Southern States, to the maritime portions of which it is more particularly attached. Indeed, it seldom goes farther inland than forty or fifty miles, and even then follows the swampy margins of large rivers, as the Mississippi, the Santee, the St. John's, and the Savannah. It is found in Lower Louisiana, but never ascends so far as the city of Natchez, and it abounds in the south-eastern low grounds of the Floridas, and in those of Georgia and South Carolina, as well as in the sea islands of the Atlantic coasts, as far north as Carolina, beyond which none are to be seen.

The Boat-tailed Grakles are gregarious at all seasons of the year, and frequently assemble in very large flocks, which, however, cannot be compared with those of the Purple Grakle, or of the Red-winged Starling. They seek for their food amid the large salt marshes, and along their muddy shores, and throw themselves into the rice plantations as soon as the grain is fit for being eaten by them. In autumn they resort not unfrequently to corn fields, and the ploughed lands of the plantations, interspersed with ponds or marshy places, retiring towards evening to the salt marshes, where they roost in immense flocks amid the tall marsh grass (*Spartina glabra*), from which their cries are heard until darkness comes on.

The food of this species consists principally of those small crabs called "fiddlers," of which millions are found along the margins of the rivers and mud-flats, as well as of large insects of all kinds, ground-worms, and seeds, especially grain. They frequently seize on shrimps, and other aquatic animals of a similar nature, that have been detained at low water on the banks of racoon oysters, a kind of shell-fish so named under the idea that they are eaten by the racoon. In autumn, while the rice is yet in the stack, they commit considerable mischief by feeding on the grain, although not so much as when it is in a juicy state, when the planters are obliged to employ persons to chase them from the fields.

About the beginning of February, the males have already mated, and many begin their nests at this early season. It is then that you ought to see the

Boat-tailed Grackle.

1. Male. 2. Female.

Live Oak.

Drawn from Nature by J.J.Audubon,F.R.S.F.L.S. Lith.ª Printed & Col.ª by J. T. Bowen, Phila.ª

Boat-tailed Grakle, for at that period its plumage displays the richest gloss, and its tail, which, after the breeding season, is no longer navicular, is deeply incurved towards the centre. Proud of his elegant form and splendid plumage, he alights on the topmost branch of some evergreen oak, droops his wings and tail, swells his breast, and glitters in the bright rays of the sun, which call forth all the variations of tint for which his silken plumes are remarkable, and pours forth his loud though not always agreeable song. He watches his rivals as they pass, pursues them with ardent courage, returns to his stand exulting, and again pours forth his song.

No sooner has he make himself sure of the attachment of a female, than his jealous temper is subdued, and he places implicit reliance on the fidelity of his mate, in which he might be advantageously imitated by other beings. Many pairs now resort to a place previously known to them, and in the greatest harmony construct their mansions. Well do they remember the central islet of the lake, among the thickets of which, in security and comfort, their brood was reared in the previous season. Each pair choose their branch of smilax, and if the former tenement has escaped the shock of the winter winds, they repair and augment it, so as to render it fit for the reception of their eggs. If it has been destroyed, they quickly form a new one from the abundant materials around. The long-fibred Spanish moss dangles from every tree; dry twigs, withered grasses, and dead leaves lie strewn around, and the thready roots used for the lining are found in their inaccessible island. Each female now deposits her eggs, on which she sits in patient hope; while in the mean time all the male birds fly off together, and leave their mates to rear their offspring. Far away to the marshes they betake themselves, nor are they seen any more with their young, until the latter are able to join their neglectful fathers. Strange arrangement and singular, when, in other instances, Nature fills the husband and father with so much affection and solicitude! Nay, in the male Grakle has been implanted a desire to destroy the eggs of every bird, while at the same time he has been impelled to leave his mate, that she may hatch her own in security! 'Other species are governed by laws equally rigorous. The female Wild Turkey shuns her mate, that she may save not her eggs only, but even her young, which he would destroy; and, as I am not the only student of Nature who has witnessed the extraordinary conduct of the present species of Grakle in this respect, I am enabled to present you with some particulars supplied by my friend BACHMAN.

"In the spring of 1832, I went with Mr. LOGAN in a boat to the centre of a very large pond, about four or five feet deep, and partially overgrown with bushes. On a bush of smilax were built about thirty nests of the Boat-tailed Grakles, from three to five feet apart, some of them not more than

fifteen inches above the surface of the water. The nests contained mostly three eggs each, and were all quite fresh. The old birds were not near. In about a quarter of an hour afterwards, a flock of females appeared, sailing around us, chattering as if distressed at our intrusion. Some of them were shot, but the remainder still continued in the neighbourhood, unwilling to leave their nests. It was singular to observe that no males made their appearance. I have visited the nests of this species, when placed on live oak-trees, where they also breed in communities, thirty or forty feet above the ground. I watched the manners of the old birds, the way in which they built their nests, and their young, until fully fledged, but never found the males in the vicinity of the nests from the time the eggs were laid. The males always kept at a distance, and in flocks, feeding principally in the marshes, at this season of the year, the females alone taking charge of their nest and young. These latter are excellent eating whilst squabs. They do not leave the nest until fully fledged, although they often stand on the borders of it awaiting the arrival of the mother, squatting back into it at the least appearance of danger."

The nest of the Boat-tailed Grakle is large, and composed of dry sticks, mosses, coarse grasses, and leaves intertwined. The interior is formed of fine grass, circularly disposed, and over this is a lining of fibrous roots. The eggs are four or five, of a dull white colour, irregularly streaked with brown and black. This species raises only one brood in the season, and the young are able to follow their mother, on wing, by the 20th of June. The period at which these birds usually lay is about the 1st of April, but this varies according to latitude, and I believe that the very old birds breed earlier than the others.

When the Boat-tailed Grakles breed on the tall reeds that border upon bayous or grow on the margins of lakes, especially in Louisiana and the Floridas, the cries of the young when they are nearly fledged frequently attract the attention of the alligator, which, well knowing the excellence of these birds as articles of food, swims gently towards the nest and suddenly thrashing the reeds with his tail, jerks out the poor nestlings and immediately devours them. One or two such attacks so frighten the parent Grakles, that, as if of common accord, they utter a chuck, when the young scramble away among the reeds towards the shore, and generally escape from their powerful enemies. This species, the Red-winged Starling and the Crow Blackbird, ascend and descend the reeds with much celerity and ease, holding on by their feet. In that portion of East Florida called the "Ever Glades," the Boat-tailed Grakles frequently breed in company with the Little Bittern (*Ardea exilis*), the Scolopaceous Courlan, and the Common Gallinule; and when on trees, along with the Green Heron.

The flight of this bird exhibits long and decided undulation, repeated at intervals of about forty yards, it being performed at a considerable elevation, and protracted to a great distance. It flies in loose flocks, when it never ceases to utter its peculiar cry of *kirrick, crick, crick.* In autumn, or as soon as the females and their broods associate with the males, their movements are regular from south to north, while returning towards their roosting places, and the reverse next morning when going out to look for food. They seldom rise from the rushes in compact bodies, unless they should happen to be surprised. At the report of a gun they fly to a great distance, and are always extremely shy and wary. The female does not carry her tail so deeply incurved as the male. During the breeding season they return to their stand, after a chase, with a quivering motion of the wings, and the tail is more deeply incurved than at any other season.

The notes of these birds are harsh, resembling loud shrill whistles, frequently accompanied with their ordinary cry of *crick, crick, cree.* In the love season they are more pleasing, being changed into sounds resembling *tirit, tirit, titiri, titiri, titirē*, rising from low to high with great regularity and emphasis. The young, when first able to fly, emit a note not unlike the whistling cry of some of our frogs.

Some of these Grakles migrate from the Carolinas and Georgia, although fully a third remain during the winter. At that season they frequently associate with the Fish Crow, and alight on stakes in the mud flats close to the cities, where they remain for a considerable time emitting their cry. They are fond of the company of cattle, walking among them in the manner of the European Starling and our own Cow Bunting, but they never enter the woods. On the ground they walk in a stately and graceful manner, with their tail rather elevated, and jetting it at each cluck.

The males often attack birds of other species, driving them from their nest, and sucking their eggs. I have seen seven or eight of them teasing a Fish Hawk for nearly an hour, before they gave up the enterprise. When brought to the ground wounded, they run off at once, make for the nearest tree, assist themselves by the bushes about it, and endeavour to get to the top branches, moving all the while so nimbly, that it is difficult to secure them. They bite and scratch severely, often bringing blood from the hand. They are courageous birds, and often give chase to Hawks and Turkey Buzzards. My friend Dr. SAMUEL WILSON of Charleston, attempted to raise some from the nest, having found four young ones in two nests, and for some weeks fed them on fresh meat, but they became so infested with insects that notwithstanding all his care they died.

In the plate are represented a pair in full spring plumage. I have placed them on their favourite live-oak tree.

I found this species abundant and breeding along the shores of the Gulf of Mexico, from the mouths of the Mississippi to within the maritime portions of the Texas, in every suitable place, forming its nests principally among the tall reeds of the salt marshes. The eggs measure one inch three-eighths in length, and seven-eighths in breadth, being of an elongated oval form. The name of Bob-tailed Grakle has been of late given to our Common Crow Blackbird, *Quiscalus versicolor*, which in my opinion is improper, in our country at least, where all original well-known names ought to be retained, were it for no other reason than to prevent inconvenience to students. No one in Kentucky, for example, would know what was meant by "Little Rusty-crowned Falcon," but would point out at once to any inquirer the "Sparrow Hawk."

QUISCALUS MAJOR, Bonap. Syn., p. 54.

GREAT CROW BLACKBIRD, *Quiscalus major*, Bonap. Amer. Orn., vol. i. p. 35.

GREAT CROW BLACKBIRD, *Quiscalus major*, Nutt. Man., vol. i. p. 192.

BOAT-TAILED GRAKLE, or GREAT CROW BLACKBIRD, *Quiscalus major*, Aud. Orn. Biog., vol. ii. p. 504; vol. v. p. 480.

Tail very long, graduated, with the feathers slightly concave above. Male with the plumage silky, splendent, the head and neck deep purplish-blue, the back, breast, and sides deep blue, passing into green behind, the rump bronzed black; the wings and tail black, glossed with green, the abdomen, lower-tail coverts, and tibial feathers, plain black. Female much smaller, with the tail shorter, the plumage unglossed beneath, and but slightly glossy above, the upper parts dusky, with slight tints of green and blue; the head and neck dull brown; the lower parts light yellowish-brown, the tibial feathers and lower tail-coverts dusky.

Male, 15⅝, 23¾. Female, 12⅝, 18.

Abundant from Texas to North Carolina along the coast. Up the Mississippi about 200 miles. Constantly resident.

In a male, from the mouths of the Mississippi, preserved in spirits, the palate is convex, with two longitudinal ridges, anteriorly with a middle and two lateral ridges. The tongue is 1 inch 2 twelfths long, slender, horny nearly in its whole length, sagittate and papillate at the base, concave above, its greatest breadth 2½ twelfths, tapering to a lacerated thin point, and with the edges also lacerated for nearly half an inch from the tip. The posterior aperture of the nares is oblong behind, linear before, with strong papillæ on the edges. The œsophagus is 5½ twelfths long, its width 7 twelfths at the commencement, then contracting to 4 twelfths, again slightly dilated to 5 twelfths; the proventriculus also 5 twelfths in width, its glands forming a belt 7½ twelfths in breadth. The stomach is elliptical, 1 inch 2 twelfths

long, 10½ twelfths in breadth; its muscular coat moderately thick, the right lateral muscle 2 twelfths; the epithelium dense, tough, longitudinally rugous, and dark brown. The intestine is of moderate length and width, the former being 15 inches, the latter averaging 3 twelfths; the cœca an inch and a half long.

The trachea is 3½ inches long, much flattened, from 3½ twelfths to 2½ twelfths in breadth; its rings about 70, very thin, with 2 dimidiate rings. The bronchi are wide, of about 12 very slender cartilaginous half rings. The lateral muscles are slender, as are the sterno-tracheal slips; and there are four pairs of inferior laryngeal muscles.

The digestive and respiratory organs of this bird do not differ materially from those of the Crows, Starlings, and Thrushes, but the œsophagus having a slight dilatation indicates some affinity to the Conirostres.

Individuals of both sexes, but especially the males, differ greatly in size, from the time they obtain their full plumage until they are several years old, the difference sometimes amounting to several inches in the length of the birds, and affording an excellent opportunity of manufacturing new species.

THE LIVE OAK, QUERCUS VIRENS, *Willd.*, Sp. Pl., vol. iv. p. 425. *Pursh*, Fl. Amer. Sept., vol. ii. p. 626.—MONŒCIA POLYANDRIA, *Linn.*—AMENTACEÆ, *Juss.*

The live oak attains a great size, spreading out its large arms to the distance sometimes of twenty yards, but seldom reaching to a proportionate height. Splendid avenues of this valuable tree are frequently seen in Georgia, South Carolina, and many of the sea islands, leading to the planters' houses. A few miles below New Orleans are some, probably centuries old, which are the finest I have seen. I have not observed this tree far above the city of Natchez on the Mississippi, nor farther eastward than the central maritime parts of North Carolina. It prefers flat rich soils, and is rarely found at any great distance from rivers or the sea-shore. The leaves are evergreen, leathery, oblong-elliptical, obtuse at the base, acute at the tip, with the edges revolute, and the lower surface downy; the cupule is turbinate, with short scales; the acorn oblong, sweet, and to the taste of some equal to the hazel-nut.

PURPLE GRAKLE, OR COMMON CROW-BLACKBIRD.

QUISCALUS VERSICOLOR, *Vieill.*

PLATE CCXXI.—MALE AND FEMALE.

I could not think of any better mode of representing these birds than that which I have adopted, as it exhibits them in the exercise of their nefarious propensities. Look at them: The male, as if full of delight at the sight of the havoc which he has already committed on the tender, juicy, unripe corn on which he stands, has swelled his throat, and is calling in exultation to his companions to come and assist him in demolishing it. The female has fed herself, and is about to fly off with a well-loaded bill to her hungry and expectant brood, that, from the nest, look on their plundering parents, joyously anticipating the pleasures of which they shall ere long be allowed to participate. See how torn the husk is from the ear, and how nearly devoured the grains of corn already are! This is the tithe our Blackbirds take from our planters and farmers; but it was so appointed, and such is the will of the beneficent Creator.

These birds are constant residents in Louisiana. I say they are so, because numbers of them, which in some countries would be called immense, are found there at all seasons of the year. No sooner has the cotton or corn planter begun to turn his land into brown furrows, than the Crow-Blackbirds are seen sailing down from the skirts of the woods, *alighting* in the fields, and following his track along the ridges of newly-turned earth, with an elegant and elevated step, which shews them to be as fearless and free as the air through which they wing their way. The genial rays of the sun shine on their silky plumage, and offer to the ploughman's eye such rich and varying tints, that no painter, however gifted, could ever imitate them. The coppery bronze, which in one light shews its rich gloss, is, by the least motion of the bird, changed in a moment to brilliant and deep azure, and again, in the next light, becomes refulgent sapphire or emerald-green.

The bird stops, spreads its tail, lowers its wings, and, with swelled throat and open bill, sounds a call to those which may chance to be passing near. The stately step is resumed. Its keen eye, busily engaged on either side, is immediately attracted by a grub, hastening to hide itself from the sudden exposure made by the plough. In vain does it hurry, for the Grakle has seen and marked it for its own, and it is snatched up and swallowed in a moment.

Thus does the Grakle follow the husbandman as he turns one furrow after

Common, or Purple Crow-Blackbird.

1. Male 2. Female

Maize or Indian Corn.

Drawn from Nature by J.J.Audubon,F.R.S.F.L.S. Lith.d Printed & Col.d by J. T. Bowen, Phila.a

another, destroying a far worse enemy to the corn than itself, for every worm which it devours would else shortly cut the slender blade, and thereby destroy the plant when it would perhaps be too late to renew it by fresh seed. Every reflecting farmer knows this well, and refrains from disturbing the Grakle at this season. Were he as merciful at another time, it would prove his grateful recollection of the services thus rendered him. But man is too often forgetful of the benefit which he has received; he permits his too commonly weak and selfish feelings to prevail over his reason, and no sooner does the corn become fit for his own use, than he vows and executes vengeance on all intruders. But to return to our Blackbird.

The season of love has arrived. Each male having, by assiduity, valour, or good fortune, received the affectionate regards of a faithful mate, unites with her in seeking a safe and agreeable retreat. The lofty dead trees left standing in our newly cultivated fields, have many holes and cavities, some of which have been bored by Woodpeckers, and others caused by insects or decay. These are visited and examined in succession, until a choice being made, and a few dry weeds and feathers collected, the female deposits her eggs, which are from four to six in number, of a bluish tint, blotched and streaked with brown and black. She sits upon them while her valiant mate and guardian mounts to the summit of a broken branch, pours forth his rude notes, and cheers and watches her with the kindest and most unremitting care. I think I see him plunging through the air and overtaking the Red-headed or the Golden-winged Woodpecker, which, in search of their last year's nest, have imprudently alighted at the entrance of the already chosen and occupied hole. The conflict is but momentary; the creeping bird is forced to yield, and after whirling round in the air as it defends itself, and very nearly comes to the ground, makes the best of its way off, well knowing that there its opponent is more formidable than even in the air.

This over, the Grakle roams in quest of food. Little heaps of grubs, with a few grains of corn, afford delicious repasts to himself and his mate. They thus share the labours of incubation, and see the time pass in eager and pleasant expectation. And now the emerging brood shake off the shell that so long enclosed them; their tottering heads are already raised toward their mother, while she, with intense anxiety, dries and cherishes them. They grow up day after day. The hole becomes nearly filled with their increased bulk. The vigilance and industry of the parents also augment apace. I wish, good-natured reader, you would seek out such a sight: it would gladden your heart, for the rearing of such a family is worthy of your contemplation.

It is with regret that I must turn from this picture. I have already told you that the Grakles are at least as fond of corn as the lords of the land are. Hark to the sound of rattles, and the hallooing of the farmers'

servants as they spread over the field! Now and then the report of a gun comes on the ear. The Grakles have scarcely a single moment of quiet; they are chased, stolen upon, and killed in great numbers, all the country round; but the hungry birds heed not the slaughter of their brethren. They fly in flocks from place to place, and, in spite of all that the farmer has done or threatens to do, continue their depredations. Food must be had. Grubs and worms have already retired to their winter quarters within the earth; no beech-nuts or acorns have yet fallen from the trees; corn is now their only resource, and the quantity of it which they devour is immense.

Now gloomy November brings up its cold blasts from the north, and drives before it the Grakles from the Eastern States. They reach Louisiana and all the Southern States when autumn has not yet retired, when the weather is still mild and serene, and the yellow foliage of the wide woods gives shelter to myriads of birds. The Grakles, congregated in prodigious flocks, alight on the trees that border the vast forests, covering every twig and bough in such astonishing masses, that the most unskilful or most avaricious gunner finds no difficulty in satisfying his wish for sport or game. This is the time to listen to their choruses. They seem to congratulate each other on their escape, and vociferate at such a rate as to make one imagine their number double what it is.

Beech-nuts and acorns are now abundant in the woods, having by this time fallen from the trees, and the Grakles roam in quest of them in immense bodies, rising on wing when disturbed, uttering at the same time a tremendous noise, then making a few rounds, and alighting again. They thus gradually clear away the mast, in the same manner as the wild pigeons are wont to do. As the weather becomes colder, they frequent the farms, and even resort to the cattle pens, where, from among the litter and refuse straw, they pick the scattered grains that have fallen from the stores with which the farmer has supplied his stock. They remain about the farms until the commencement of spring. They are easily caught in traps, and shew little fear when seized, biting so severely as often to draw blood, and laying hold with their claws in a very energetic manner.

During the winter of 1821 I caught a number of them, as well as many other birds, for the purpose of sending them alive to Europe. The whole of my captives were confined together in a large cage, where they were well fed and watered, and received all necessary attention. Things went on favourably for several days, and I with pleasure saw them becoming daily more gentle. An unexpected change, however, soon took place, for as the Grakles became reconciled to confinement, they began to attack the other birds, beating and killing one after another so fast that I was obliged to remove them from the cage. Even this did not prevent further breach of the peace, for the strong attacked and killed the weak of their own race, so

that only a few remained in the end. The Grakles thus mangled, killed and partially devoured several Cardinal Grosbeaks, Doves, Pigeons, and Blue Jays. I look upon this remarkable instance of ferocity in the Grakle with the more amazement, as I never observed it killing any bird when in a state of freedom.

What I have said respecting the Purple Grakle (which by some is improperly named the Boat-tailed Grakle) refers particularly to the habits of those in the south, where some of them are found at all seasons. I shall now speak of those of the Western and Middle States. Most of these birds leave the south about the middle of February, setting out in small detached flocks. They reach the State of New York in this straggling manner about the middle of May. Their migratory flight is perfomed in short undulating lines, resembling small segments of very large circles. It may be explained in this manner. Supposing the bird poised in the air and intent on moving forwards, it propels itself by a strenuous flap of the wings, which carries it forward in a curve, along which it ascends until it attains the level of its original point of departure, when it flaps its wings again, and performs another curve. In this form of flight they pursue their long journey, during which they keep up a continual low chattering, as if they were discussing some important question. When they reach Pennsylvania, they commence the avocations which I have already described, and are seen following the plough, while their kindred that have been left in Louisiana are probably by this time feeding their young, as the difference of climate between these latitudes leaves the northern states a month later in their seasons than the southern.

In the Northern States these birds construct their nests in a much more perfect, and therefore more natural manner. A pine tree, whenever it occurs in a convenient place, is selected by preference, its dense foliage and horizontal branches being well adapted for nidification. There the Grakle forms a nest, which from the ground might easily be mistaken for that of our Robin, the *Turdus migratorius*, were it less bulky. But it is much larger, and instead of being placed by itself, is associated with others, often to the number of a dozen or more, on the horizontal arms of the pine, forming tier above tier, from the lowest to the highest branches. The centre of the nest is what I would call *saddled* on the bough, the materials being laid so that the nest is thinner in its middle part and thicker at the two opposite sides, so as to have a firm hold. It is about six inches in diameter outside, and four inches within, the depth being the same, and is composed of grass, slender roots and mud, lined with hair and finer grasses. I had a white pine-tree in one of my fields on Mill Grove Farm, on which many of these birds bred every spring, when some mischievous lads frequently amused themselves with beating down the nests with long fishing-rods, to my great

annoyance. Some of the Pennsylvania farmers, from a very laudable motive, have given out that Grakles are fond of pulling up the garlic plant, so injurious to the pastures of the Middle States; but I am sorry to say this assertion is by no means correct, and were these good people to look to the Grakles for the clearing of their fields from that evil, they might wait long enough.

The flesh of the Purple Grakle is little better than that of the Crow, being dry and ill-flavoured, notwithstanding which it is frequently used, with the addition of one or two Golden-winged Woodpeckers or Redwings, to make what is here called *pot-pie*, even amidst a profusion of so many better things. The eggs, on the contrary, are very delicate, and I am astonished that those who are so anxious for the destruction of these birds do not gratify their wishes by eating them while yet in the egg. In some parts of Louisiana, the planters steep the seed corn for a few hours in a solution of Glauber's salt, to deter the Grakles and other birds from eating the grains when just *planted*.

The Purple Grakle travels very far north. I have found it everywhere during my peregrinations, and in one or two instances have seen it form its nest in the fissures of rocks.

According to Dr. RICHARDSON, this species reaches the plains of the Saskatchewan in the beginning of May, in flocks of from twenty to a hundred, the males and females separate; and, as in Pennsylvania, several pairs nestle on the branches of the same tree. I have found it dispersed over the country from Texas to Nova Scotia, but met with none in Newfoundland or Labrador. It was not observed by Dr. TOWNSEND on the Columbia river.

Dr. BACHMAN, who has seen it building in the hollows of trees, and in abandoned nests of Woodpeckers, has observed it carrying grass and mud for the construction of its nest. It breeds in like situations in Louisiana, without using these materials; and in the middle and northern districts forms a fine, well-finished nest, such as I have described. The eggs measure one inch and half an eighth in length, by five and a half eighths in breadth, are of a bluish-white colour, blotched, streaked, and spotted with brown and black. On the Florida Keys I found this species breeding in low mangroves, in communities, along with the White-headed Pigeon, *Columba leucocephala*, and thought that the glossy richness of the plumage far exceeded that of our northern birds; yet, on close examination, I could observe no other difference in them. I have also found them breeding westward of the mouths of the Mississippi, as far as the Texas.

PURPLE GRAKLE, *Gracula quiscala*, Wils. Amer. Orn., vol. iii. p. 44.

PURPLE GRAKLE, *Gracula quiscala*, Bonap. Amer. Orn. vol. i. p. 42.

GRACULA QUISCALA, Bonap. Syn., p. 54.

COMMON CROW BLACKBIRD, *Quiscalus versicolor*, Nutt. Man., vol. i. p. 194; vol. v. p. 481

QUISCALUS VERSICOLOR, *Common Purple Boat-tail*, Swains. and Rich. F. Bor. Amer., vol. ii. p. 485.

PURPLE GRAKLE or COMMON CROW BLACKBIRD, *Quiscalus versicolor*, Aud. Orn. Biog., vol. i. p. 35; vol. v. p. 481.

Tail long, much rounded, with the feathers flat. Male with the plumage silky and splendent, the head, neck, and anterior part of the breast blackish, with vivid reflections of violet, steel-blue, and green; general colour of the body dusky, glossed with purple, green, and blue, these colours arranged in three terminal zones, on each feather; rump violet-purple; wings and tail black, glossed with green and blue. Female considerably smaller, with the body more brown, the reflections much less brilliant. Young brown.

Male, 13, 19. Female, 11, 16.

Breeds from Texas to the Fur Countries. Resident in the Southern States. Extremely abundant.

A male preserved in spirits measures to end of tail 11½ inches, to end of wings 8¾, to end of claws 10; wing from flexure 6; tail 5; extent of wings 17¼.

The mouth is rather narrow, its width being 6½ twelfths; the palate ascending, with two papillate ridges, the space between which and the margin of the posterior nasal aperture is also papillate. The latter is 6 twelfths long, linear, and margined with strong papillæ. There are three ridges on the anterior part of the roof of the mouth, of which the middle is much stronger, at the base large, prominent, and hard, being similar to the knob observed in the Buntings, but much more elongated

The tongue is slender, 9 twelfths long, emarginate and papillate at the base, grooved above, horny toward the end, slightly lacerated, and slit at the tip. The œsophagus, *a b c d*, is 4¼ inches long, 5 twelfths in width at the commencement; then for the length of nearly two inches dilated to 7½ twelfths, on entering the thorax contracted to 4 twelfths. The stomach, *d e*, is of moderate size, round, a little compressed, moderately muscular, the right muscle 3 twelfths, the left 2½ twelfths thick; the epithelium dense, horny, slightly rugous, with two roundish slightly concave grinding surfaces. The œsophagus contains two grains of maize, and the stomach is distended with fragments of the same, together with portions of husks and grains of sand. The intestine, *f g h i j k*, is of moderate length and rather wide, being 16 inches long, and from 4 twelfths to 2½ twelfths wide; the duodenum, *f g h*, curves in the usual manner, returning at the distance of two inches; the cœca, *i*, which come off at the distance of 1½ inches from the extremity, are 1½ inches long, but only ½ twelfth in width; the rectum gradually enlarges into an oblong cloaca, *j*, about 5 twelfths in width.

The trachea is 3 inches long, moderately flattened, 1½ twelfths in breadth, its rings firm, and about 60 in number, with 2 additional dimidiate rings. The lateral muscles are slender, as are the sterno-tracheal; there are four pairs of large inferior laryngeal muscles. The bronchi are of moderate size with about 15 half rings.

The Maize or Indian Corn.

Zea Mays, *Willd.*, Sp. Pl., vol. iv. p. 200. *Pursh*, Flor. Americ., p. 46.—Monœcia Triandria, *Linn.*—Gramineæ, *Juss.*

Rusty Crow Blackbird.

1 Male. 2 Female 3 Young.

Black Haw.

Drawn from Nature by J.J.Audubon.F.R.S.F.L.S.

Lith.d Printed & Col.d by J. T. Bowen. Phila.a

THE RUSTY GRAKLE, OR RUSTY CROW BLACKBIRD.

QUISCALUS FERRUGINEUS, *Lath.*

PLATE CCXXII.—MALE, FEMALE, AND YOUNG.

In the winter months the Rusty Grakle is found as far south as Lower Louisiana and the Floridas, which it reaches in small flocks, along with the Cow Bunting and Red-winged Starling, with which it continues frequently to associate until the return of spring. At this season it occurs in all the Southern and Western States, as well as in the Middle and Eastern Districts, where some remain during the most severe cold.

These Grakles are fond of the company of cattle, and are seen with them in the pastures or in the farm-yards, searching for food among their droppings, and picking up a few grains of the refuse corn. They are less shy than the other species, possibly because less acquainted with man, as they retire to the north for the purpose of breeding. In the winter they frequently resort to moist places, such as are met with round the ponds and low swampy meadows, where you sometimes find a single one remaining for weeks apart from its companions. They then feed on aquatic insects and small snails, for which they search diligently among the rank reeds or sedges, which they climb with great agility. Their note is a kind of chuck. It is rare to meet with them in full plumage at this time, even the old males becoming rather rusty, instead of being of a pure glossy black, as they are in spring.

About the beginning of March, the males are seen moving northwards. They cross the greater part of the United States almost in silence and unheeded, seldom tarrying anywhere until they reach the State of Maine, where some few remain to breed, while the greater number advance farther north. I saw some of these birds on the Magdeleine Islands, in Newfoundland, as well as in Labrador, where many breed. Their migrations are performed by day.

In their habits they resemble the Red-winged Starling, becoming loquacious at this season, and having a lively and agreeable song, although less powerful in tone than that of the species just mentioned. Equally fond of the vicinity of meadows or moist places, they construct their nests in the low bushes that occur there. The nest is not so large as that of the Redwing, but is composed of much the same materials. In Labrador I found it lined

with moss instead of coarse grass. The eggs are four or five, of a light blue colour, streaked and dashed with straggling lines of brown and deep black, much smaller than those of the Redwing, but in other respects bearing a considerable resemblance to them. They begin to lay about the 1st of June, in the State of Maine, and fully a fortnight later in Labrador. They raise only one brood in the season. The young, when first able to fly, are nearly of a uniform brown, brighter on the breast and shoulders. Although they seem to prefer alder and willow bushes, for the purpose of incubation, I have found their nests among the tall reeds of the *Cat's-tail* or Typha, to which they were attached by interweaving the leaves of the plant with the grasses and strips of bark of which they were externally composed.

During early autumn, and before they remove southward, they frequently resort to the sandy beaches of lakes, rivers, and the sea, in search of small testaceous mollusca and aquatic insects. They do little or no mischief in the corn-fields. While walking they frequently jerk their tail, and move with much grace, in the same manner as other birds of the genus. Their flight resembles that of the Red-winged species.

An acquaintance of mine, residing in New Orleans, found one of these birds, a beautiful male in full plumage, not far from that city, while on one of his accustomed walks. It had been shot, but was only slightly injured in one of its wings, and as it was full of vivacity, and had a clear and brilliant eye, indicating that its health had not suffered, he took it home and put it in a cage with several Painted Buntings. They soon became accustomed to each other, the Grakle evincing no desire to molest its smaller companions. I saw it when it had already been caged upwards of four months, and had the satisfaction to hear it sing repeatedly. Its notes, however, were less sonorous than they usually are when the birds are at liberty. It frequently uttered its travelling chuck-note. It was fed entirely on rice. This was the only specimen I ever saw in captivity, and it proved a very amiable companion.

I have figured three of these birds, to enable you the better to understand their different states of plumage, and placed them on a plant of the genus Prunus, which grows in Louisiana, and on the berries of which they occasionally feed.

This species is found on the shores of the Columbia river, and in all the districts intervening between them and those of the Gulf of Mexico, at least in winter and the early part of spring. Mr. TOWNSEND, who procured some on the Columbia, did not inform me whether it breeds there. Northward, according to Dr. RICHARDSON, its summer range extends to the 68th parallel, or as far as the woods reach, and it arrives in pairs on the banks of the Saskatchewan in the beginning of May. In that country it joins with the

Redwings, Common Crow Blackbirds, and Cow Buntings, in committing depredations on the corn-fields.

The eggs of this species measure one inch in length, five and a half eighths in breadth. Their ground-colour is pale blue, marked sparingly with blotches of brownish-black, and others more numerous of pale purplish-grey, the former disposed round the large end, the latter over the whole surface.

Rusty Grakle, *Gracula ferruginea*, Wils. Amer. Orn., vol. iii. p. 41.

Quiscalus ferrugineus, Bonap. Syn., p. 55.

Scolecophagus ferrugineus, *Rusty Maggot-eater*, Swains. and Rich. F. Bor. Amer., vol. ii. p. 286.

Rusty Blackbird, *Quiscalus ferrugineus*, Nutt. Man., vol. i. p. 199.

Rusty Grakle, *Quiscalus ferrugineus*, Aud. Orn. Biog., vol. ii. p. 325; vol. v. p. 483.

Male, 9½, 14¾.

From Texas to Maryland, and along the Mississippi and Ohio to Kentucky, during winter. Migrates northward to the Fur Countries, and to the Columbia river, in summer. Common.

Adult Male.

Bill of moderate length, straight, tapering, compressed from the base; upper mandible prolonged on the forehead, forming an acute angle there, a little declinate at the tip, the dorsal outline slightly convex, the sides convex, the edges sharp and inflected; lower mandible nearly straight in its dorsal outline, convex on the sides, the edges sharp and inflected; gape-line deflected at the base. Nostrils basal, oval, half closed above by a membrane. Head of ordinary size, neck rather short, body rather slender. Feet of moderate length, strong; tarsus compressed, with a few long scutella anteriorly, sharp behind; toes compressed, the lateral nearly equal, the outer united as far as the second joint to the middle, which is much longer, hind-toe not much stouter than the inner; claws rather long, arched, compressed, very acute.

Plumage soft, blended, glossy. Wings rather long, second quill longest, first and fourth equal. Tail rather long, slightly rounded, of twelve broad feathers.

Bill and feet black. Iris pale yellow. The general colour is deep black, with greenish and bluish reflections.

Length 9¼ inches, extent of wings 14¼; bill along the back ¾, along the edge 1½; tarsus 1¼.

Adult Female.

Bill, iris, and feet as in the male. The general colour is brownish-black; the side of the head over the eyes, and a broad band beneath it light yellowish-brown, the feathers of the lower parts more or less margined with brownish.

Length 8$\frac{1}{12}$ inches, extent of wings 13$\frac{1}{2}$.

In a male preserved in spirits, the palate is slightly ascending, with two papillate ridges; the posterior aperture of the nares 5 twelfths long, margined with small papillæ; the upper mandible beneath slightly concave, with three longitudinal ridges and four grooves. The tongue is 9 twelfths long, narrower, very thin, concave above, sagittate and papillate at the base, the tip slit and lacerated, forming two elongated points. The tongue is thus very different from that of the Buntings and Finches, which generally have it deeper than broad, and is similar to that of the Crows, Starlings, Thrushes, &c. The breadth of the mouth is 5$\frac{1}{2}$ twelfths. The œsophagus is 3 inches long, its greatest width 5 twelfths, on entering the thorax contracting to 2$\frac{1}{2}$ twelfths. The stomach is elliptical, rather large, 10 twelfths in length, 7 twelfths in breadth; the lateral muscles rather thin, the tendons large; the epithelium thin, dense, reddish-brown, longitudinally rugous. The stomach is filled with small seeds and insects, together with some grains of quartz. The intestine is 11$\frac{1}{2}$ inches long, from 2$\frac{1}{2}$ twelfths to 2 twelfths in width; the cœca 3 twelfths long, $\frac{1}{4}$ twelfth in width, 10 twelfths distant from the extremity.

The trachea is 2 inches 4 twelfths long, considerably flattened; its rings, which are firm, about 80, with 2 additional rings. Bronchial half rings about 15. Four pairs of inferior laryngeal muscles, which are large and well defined.

In all the *Quiscali*, *Icteri*, and other birds of this group, there are slender salivary glands as in the Thrushes and Warblers, as well as the Finches and Buntings.

The Black Haw.

Prunus nigra, *Pursh*, Flor. Amer. Sept., vol. i. p. 331.—Icosandria Monogynia, *Linn.*—Rosaceæ, *Juss.*

Leaves deciduous, ovate, acuminate, unequally serrate, smooth on both sides; umbels sessile, solitary, few-flowered.

This species of Prunus, which is tolerably abundant in Louisiana, the only State in which I have observed it, grows along the borders of the forest, and often attains a height of thirty or more feet. Its leaves fall at a very early period, but its fruits, which are pleasant to the taste, remain until after the first frosts, or until devoured by birds, opossums, squirrels, or racoons.

FAMILY XVII.—STURNINÆ. STARLINGS.

Bill nearly as long as the head, moderately stout, or rather slender, nearly straight, compressed toward the end; upper mandible with its outline straight, slightly convex toward the tip, the ridge somewhat flattened, the sides sloping and convex, the edges sharp and overlapping, with a very slight or obsolete notch, close to the depressed tip; lower mandible with the angle long and rather acute, the crura rather broad and flat at the base, the dorsal line straight, the edges sharp, the tip slender; gap-line ascending gently at the base, then direct. Head ovate or oblong, flattened above; neck of moderate length; body rather full. Feet moderately stout; tarsus rather short, compressed, with seven anterior scutella; toes moderate, or rather long, the first stouter, the lateral toes equal, the outer adherent at the base. Claws rather long, moderately arched, compressed, acute. Plumage rather compact. Wings of moderate length, with the first quill very small, the third and fourth longest. Tail short or of moderate length, rounded, and generally emarginate. Roof of upper mandible with a median ridge; tongue slender, thin-edged, with the tip slit and lacerated; œsophagus without dilatation; stomach roundish, its muscular coat rather thin, the epithelium dense, and longitudinally rugous; intestine of moderate length and width; cœca very small, cylindrical; cloaca ovate or oblong. Trachea simple, with four pairs of inferior laryngeal muscles. Nest on the ground, or in cavities; eggs about five.

GENUS I.—STURNELLA *Vieill.* MEADOW STARLING.

Bill rather long, almost straight, conico-subulate, depressed toward the end; upper mandible with the ridge somewhat flattened, the edges sharp and overlapping; the tip narrow, but rounded; lower mandible with the outline straight, the ridge convex, the sides ascending; the tip slightly rounded. Nostrils oval, with an arched membrane above. Head of ordinary size, depressed; neck of moderate length; body rather full. Feet of moderate length, strong; tarsus distinctly scutellate; lateral toes nearly equal, hind toe

stout. Claws arched, compressed, acute, that of the hind toe large. Plumage rather compact. Upper eyelid margined with strong bristles. Wings of moderate length, broad ; the second, third, and fourth quills longest ; one of the inner secondaries nearly as long when the wing is closed. Tail short, much rounded, of twelve acute feathers.

THE MEADOW LARK, OR MEADOW STARLING.

STURNELLA LUDOVICIANÆ, *Linn.*

PLATE CCXXIII.—MALE, FEMALE, AND NEST.

How could I give the history of this beautiful bird, were I not to return for awhile to the spot where I have found it most abundant, and where the most frequent opportunities occurred of observing it? Then, reader, to those rich grass fields let us stray. We are not far from the sandy sea-shores of the Jerseys ; the full beauties of an early spring are profusely spread around us ; the glorious sun illumines the creation with a flood of golden light, as he yet lies beneath the deep ; the industrious bee is yet asleep, as are the birds in bush and tree ; the small wavelets break on the beach with a gentle murmur ; the sky is so beautifully blue, that, on seeing it, one fancies himself near heaven ; the moon is about to disappear in the distant west ; the limpid dew-drops hang on every leaf, bud, and blossom, each tall blade of grass bending under the weight. Anxious to view Nature at her best, I lie waiting in pleasure for the next moment :—it has come ; all is life and energy ; the bee, the bird, the quadruped, all nature awakes into life, and every being seems moving in the light of the Divine countenance. Fervently do I praise the God who has called me into existence, and devoutly do I pursue my avocations, carefully treading on the tender grass, until I reach a seat by nature's own hand prepared, when I pause, survey, admire, and essay to apprehend all—yes, *all* around me! Delightful days of my youth, when full of strength, health, and gladness, I so often enjoyed the bliss of contemplating the beauties of creation! They are gone, never to return ; but memory fondly cherishes the thoughts which they called into being, and while life remains will their memory be pleasing.

See the Lark that arrived last evening! fully refreshed, and with a bosom

R T

Meadow Starling or Meadow Lark

1. Males. 2. Female and Nest.

Yellow flowered Gerardia.

Drawn from Nature by J.J.Audubon,F.R.S.F.L.S. Lith.ed Printed & Col.d by J. T. Bowen, Philad.a

overflowing with love towards her who had led him thus far, he rises from his grassy couch, and on gently whirring pinions launches into the air, in the glad hope of finding the notes of his beloved fall on his ear. The male is still on the wing; his notes sound loud and clear as he impatiently surveys the grassy plain beneath him. His beloved is not there. His heart almost fails him, and disappointed he rises towards the black walnut-tree, under which, during many a summer's heat, the mowers have enjoyed both their repast and their mid-day rest. I now see him, not desponding as you might suppose, but vexed and irritated. See how he spreads his tail, how often he raises his body, how he ejaculates his surprise, and loudly calls for her whom of all things he best loves.—Ah!—there comes the dear creature; her timorous, tender notes announce her arrival. Her mate, her beloved, has felt the charm of her voice. His wings are spread, and buoyant with gladness, he flies to meet, to welcome her, anticipating all the bliss prepared for him. Would that I could interpret to you, reader, as I feel them, the many assurances of friendship, fidelity and love that at this precious moment pass from one to the other, as they place their bills together and chatter mutual loves!—the gentle chidings of the male for the sorrow her delay has caused him, and the sweet words she uses to calm his ardour. Alas! it were vain to attempt it. I have listened to the talk, it is true; I have witnessed all their happiness; but I cannot describe it to you. You, reader, must watch them, as I have done, if you wish to understand their language. If not, I must try to give you a taste of what I would willingly impart, were I competent to the task, and proceed to relate what I have observed of their habits.

When the Meadow Lark first rises from the ground, which it does with a smart spring, it flutters like a young bird, then proceeds checking its speed and resuming it in a desultory and uncertain manner, flying in general straight forward, and glancing behind as if to ascertain the amount of its danger, but yet affording an easy aim to the most inexperienced marksman. When pursued for awhile, it moves more swiftly, sailing and beating its wings alternately, until it gets out of reach. It will not stand before the pointer longer than a moment, and that only when surprised among rank weeds or grasses. During its migrations, which are usually performed by day, it rises above the tallest forest trees, passing along in loose bodies, and not unfrequently in flocks of from fifty to a hundred individuals. At such times its motions are continued, and it merely sails at intervals, to enable it to breathe and renew its exertions. Now and then, one may be seen making directly towards another, chasing it downwards or horizontally away from the group, uttering all the time a sharp querulous note, and keeping up the pursuit for a distance of several hundred yards, when it suddenly abandons

it. Both birds then rejoin the flock, and the party continue their journey in amity. When flocks thus travelling spy a favourable feeding place, they gradually descend and alight on some detached tree, when, as if by one accord, each individual jerks out its tail, springs on its legs, and utters a loud soft call-note. They then fly successively to the ground, and immediately proceed in search of food. An old male now and then erects itself, glances its eye around with anxious scrutiny, and should danger be perceived, does not fail to inform his party by emitting a loud rolling note, on hearing which the rest of the flock become alert, and hold themselves in readiness to depart.

In this manner the Meadow Larks proceed in autumn from the northern parts of Maine to the State of Louisiana, the Floridas, or Carolinas, where they abound during the winter. At this season the pine barrens of the Floridas are filled with them, and after the land has been fired by the native herdsmen, these birds become as sooty as the Sparrows residing in London. Some were so infested with ticks as to have lost almost all the feathers off their body, and in general they appeared much smaller than those of the Atlantic States, probably on account of the deficiency of their plumage. In the prairies of the Opellousas and those bordering on the Arkansas river, they are still more abundant. Many of these, however, retire into Texas and Mexico at the approach of very severe weather. They now sleep on the ground among the tall grass, but at a distance of many yards from each other, in the manner of the Carolina Dove.

At the approach of spring, the flocks break up, the females first separating. The males then commence their migrations, flying in small flocks, or even sometimes singly. At this season the beauty of their plumage is much improved, their movements have acquired more grace, their manner of flight and all their motions when on the ground evidently shewing how strongly they feel the passion that glows in their bosom. The male is seen to walk with stately measured steps, jerking out his tail, or spreading it to its full extent, and then closing it, like a fan in the hands of some fair damsel. Its loud notes are more melodious than ever, and are now frequently heard; the bird sitting the while on the branch of a tree, or the top of some tall weed of the meadows.

Woe to the rival who dares to make his appearance! Nay, should any male come in sight, he is at once attacked, and, if conquered, chased beyond the limits of the territory claimed by the first possessor. Several males may sometimes be seen engaged in fierce conflict, although these frays seldom last more than a few moments. The sight of a single female at once changes their occupation, and after her they all fly off as if mad. The female exhibits the usual timidity of her sex, that timidity without which, even in Meadow Larks, she would probably fail in finding a mate. As he flies towards her,

uttering the softest of his notes, she moves off in such a manner that her ardent admirer often seems doubtful whether she means to repel or encourage him. At length, however, he is permitted to go nearer, to express by his song and courteous demeanour the strength and constancy of his passion. She accepts him as her lord, and in a few days both are seen busily searching for an appropriate spot in which to rear their young.

At the foot of some tuft of tall strong grass you find the nest. A cavity is scooped out of the ground, and in it is placed a quantity of grass, fibrous roots, and other materials, circularly disposed so as to resemble an oven, around which leaves and the blades of the surrounding grasses are matted together so as to cover and conceal it. The entrance admits only one at a time, but both birds incubate. The eggs are four or five, pure white, sprinkled and blotched with reddish-brown, mostly towards the larger end. The young are out towards the end of June, and follow their parents for some weeks afterwards. These birds are unremitting in their attention towards each other, and in the care of their offspring, and while the female sits, the male not only supplies her with food, but constantly comforts her by his song and the watchfulness which he displays. Should one approach the nest, he immediately rises on wing, passes and repasses in circles over and around the spot in which the nest is, and thus frequently leads to the hidden treasure.

Excepting Hawks and Snakes, the Meadow Lark has few enemies at this season. The prudent and enlightened farmer, mindful of the benefit his meadows have received from the destruction of thousands of larvæ, which might have greatly injured his grass, disturbs it not, and should he find its nest while cutting his hay, he leaves the tuft in which it is placed. Even young children seldom destroy this bird or its brood.

It must not, however, be supposed that the Meadow Lark is entirely harmless. In the Carolinas, many well instructed planters agree in denouncing it as a depredator, alleging that it scratches up oat seeds when sown early in spring, and is fond of plucking up the young corn, the wheat, the rye, or the rice.

In confinement this bird has another fault. Dr. Samuel Wilson of Charleston told me that one of the Meadow Larks which he had purchased in the market, with a number of other birds, had been found feeding on the body of a Bay-winged Bunting, which it had either killed, or found dead in the aviary. He said he had watched the bird more than twenty minutes, and plainly saw that it plunged its bill into the flesh of the Finch to its eyes, and appeared to open and close it alternately, as if sucking the juices of the flesh. Two days afterwards, the same Meadow Lark actually killed two other Finches that had their wings clipped, and ate them.

During the latter part of autumn, as well as in winter, this species affords a good deal of sport, especially to young gunners, some of whom speak highly of its flesh. This may be true respecting the young, but the yellow oily appearance of the flesh of the old ones, its toughness, and the strong smell of insects which it emits, prevent it from being an agreeable article of food. They are nevertheless offered for sale in almost all our markets.

In the winter months, this bird frequently associates with the Carolina Dove, several species of Grakle, and even Partridges; is fond of spending its time in corn-fields after the grain has been gathered, and often makes its appearance in the cattle-yard of the planters. In Virginia it is called the "Old-field Lark."

While on the ground, the Meadow Lark walks well, and much in the manner of the Grakle and the European Starling, to which it is in some measure allied. When on the wing, they seldom fly close enough to allow more than one to be shot at a time. When wounded, they run off with alacrity, and hide with great care, so as to be found with difficulty. They alight with equal readiness on trees, on the branches of which they walk with ease, on fences, and even at times on out-houses. Their food consists of grass seeds, and grains of almost every sort, along with all kinds of insects and berries. Although gregarious, they seldom move close together while on the ground, and, on the report of a gun, you may see perhaps a hundred of them rise on the wing from different parts of a field. They are never found in close woods. During winter, the open western prairies abound with them, and in every corn-field in the State of Kentucky you are sure to find them in company with Partridges and Doves. They now and then resort to roads, for the purpose of dusting themselves, and move along the edge of the water in order to bathe.

This beautiful bird is dispersed over all the countries intervening between the shores of the Columbia River and the Gulf of Mexico. I found it very abundant and breeding on the Island of Galveston in the Texas, where, as well as in our Southern States, it is a constant resident. It travels northward as far as the Saskatchewan river, where, according to Dr. RICHARDSON, it arrives about the first of May, but beyond which it was not seen. In a note appended to the article on this bird in the Fauna Boreali-Americana, Mr. SWAINSON says it "is subject to very considerable variation, not only in its colour, but in its size, and in the proportionate length of the bill. The northern specimens are larger and much paler than those we possess from Georgia, while the Pennsylvania ones are intermediate between the two, proving the influence of climate or the prevalence of particular races." This note is in perfect accordance with my views as regards the migrations of birds, and it corroborates the fact which I have already mentioned, that the

larger, and consequently the stronger, birds are those which remove farthest north in spring. The differences as to size and colour acknowledged to exist in this species, may be observed in a greater or less degree in almost every bird ; and I am fully convinced that a great number of young birds as well as females, have been converted into distinct species, through the lamentable epidemic mania which has infected the closet-naturalists, who found their fame on the invention of useless names. The eggs of the Meadow Lark are an inch and two-twelfths in length, and seven-eighths in breadth.

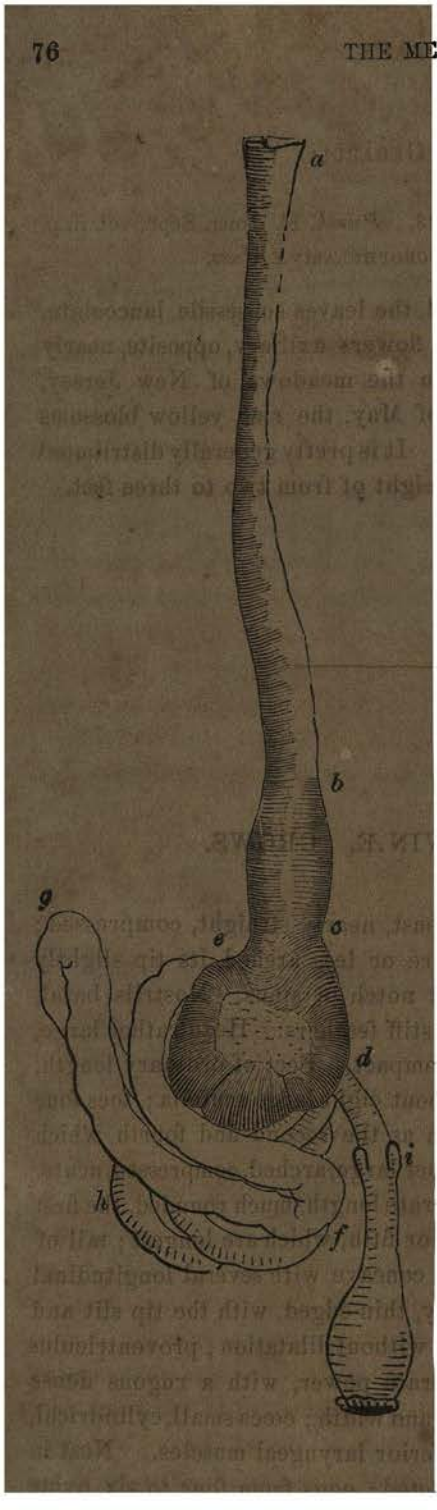
MEADOW LARK, *Alauda magna*, Wils. Amer. Orn., vol. iii. p. 20.
STURNUS LUDOVICIANUS, Bonap. Syn.
STURNUS LUDOVICIANUS, *Crescent Starlet*, Swains. and Rich. F. Bor. Amer., vol. ii. p. 282.
AMERICAN STARLING or MEADOW LARK, Nutt. Man., vol. i. p. 147.
MEADOW LARK or AMERICAN STARLING, Aud. Orn. Biog., vol. ii. p. 216; vol. v. p. 492.

Breeds from Texas to the Columbia river, and along the Atlantic coast to Nova Scotia and the Fur Countries. Resident in the Southern and Western States. Abundant.

Upper parts variegated with dark brown, bay, and dull yellowish, the latter bordering the feathers; those of the hind parts of the back barred, as are the secondary quills and their coverts; primary quills dark brown, margined, the outer with whitish, the rest with pale yellowish ; edge of the wing yellow ; three outer tail-feathers white, with a dash of black on the outer web near the end, the next feather also more or less white, and barred on the outer web; on the upper part of the head a central and two lateral bands of brownish-yellow, the lateral band sometimes white, anteriorly tinged with yellow ; sides of the head and neck greyish-white, flanks and lower tail-coverts reddish-white, streaked with black ; fore neck and breast rich yellow, the former with a large crescent of black. Female smaller, but otherwise similar.

Male, $11\frac{2}{12}$, $16\frac{1}{2}$.

In an adult male preserved in spirits, the roof of the mouth has a median ridge anteriorly, with two ridges on the palate, which is convex and ascending ; the posterior aperture of the nares linear, margined with large papillæ, and 8 twelfths long. The tongue is slender, 10 twelfths long, deeply sagittate and papillate at the base, concave above, horny beneath, with a median groove, thin-edged, lacerated toward the tip, which is slit to the depth of 1 twelfth. It resembles the tongue of the Quiscali, Starlings, Crows, and Thrushes. The œsophagus, *a b c*, is $4\frac{1}{2}$ inches long, very narrow, its average width along the neck being $2\frac{1}{2}$ twelfths ; on entering the thorax it enlarges



to 3 twelfths ; the proventriculus, *b c*, is 5 twelfths in breadth, its glandular belt 6 twelfths. The stomach, *c d e*, is a very strong muscular gizzard, placed obliquely, of an elliptical form, 11 twelfths in length, 9½ twelfths in breadth. The proventricular glands are large, nearly globular, ½ twelfth in diameter. The muscular coat of the stomach is rather thin, the thickness of the lateral muscles being 2 twelfths ; the epithelium dense, tough, dark red, with three longitudinal rugæ on each side. The contents of the stomach are remains of insects, larvæ, and especially legs of grasshoppers. The intestine, *e f g h i j*, is of moderate length and width, the former being 12½ inches, the latter averaging 2½ twelfths. The duodenum, *e f*, curves in the usual manner at the distance of 1¾ inches, and is 3 twelfths wide. The cœca, *i*, come off at the distance of 1½ inches from the extremity, and are 3 twelfths in length, 1 twelfth in width, and obtuse; the cloaca, *j*, is small and of an oblong form, its breadth 5 twelfths.

The trachea is 3 inches long, flattened, firm, of the nearly uniform width of two twelfths. The rings are 68, with two dimidiate, rather broad and firm. There are four pairs of inferior laryngeal muscles besides the sterno-tracheal, and the lateral muscles are of moderate size. The bronchi are rather narrow, of 18 half rings.

YELLOW-FLOWERED GERARDIA.

GERARDIA FLAVA, *Willd.*, Sp: Pl., vol. iii. p. 223. *Pursh*, Fl. Amer. Sept., vol. ii. p. 423.—DIDYNAMIA ANGIOSPERMIA, *Linn.*—SCROPHULARINÆ, *Juss.*

Downy, with the stems nearly undivided, the leaves subsessile, lanceolate, entire or toothed, the lower incised, the flowers axillary, opposite, nearly sessile. I found this plant abundant in the meadows of New Jersey, where it was in full flower at the end of May, the rich yellow blossoms enlivening the uniform aspect of the plains. It is pretty generally distributed along the Atlantic coasts, and attains a height of from two to three feet.

FAMILY XVIII.—CORVINÆ. CROWS.

Bill about the length of the head, robust, nearly straight, compressed; upper mandible with the dorsal line more or less arched, its tip slightly deflected, the edges sharp, with a slight notch or sinus. Nostrils basal, roundish, concealed by reversed slender stiff feathers. Head rather large, ovate; neck of moderate length, body compact. Feet of ordinary length, rather stout; tarsus compressed, with about eight large scutella; toes four first stronger, but about the same length as the second and fourth, which latter is adherent at the base. Claws rather large, arched, compressed, acute. Plumage various; wings long or of moderate length, much rounded, the first quill about half the length of the fourth or fifth, which are longest; tail of twelve broad feathers. Upper mandible concave, with several longitudinal ridges; tongue oblong, flat above, horny, thin-edged, with the tip slit and lacerated; œsophagus of moderate width, without dilatation; proventriculus bulbiform; stomach, a gizzard of moderate power, with a rugous dense epithelium; intestine of moderate length and width; cœca small, cylindrical, adnate. Trachea with four pairs of inferior laryngeal muscles. Nest in high places, or in cavities, rudely constructed; eggs from four to six, ovate or oblong.

Genus I.—CORVUS, *Linn.* CROW.

Bill rather long, stout, considerably compressed; upper mandible with the dorsal line declinate and arched, the sides somewhat convex, the edges nearly straight, and overlapping, the notches faint, the tip declinate, rather sharp; lower mandible with the angle rather long, and of moderate width, the dorsal line ascending, and slightly convex, the edges direct, the tip narrow. Nostrils basal, lateral, round, covered by narrow stiff feathers directed forwards. Head large, ovate; neck rather short; body robust. Legs of moderate length, strong; tarsus stout, compressed, with eight scutella; toes of moderate length, stout, first and second nearly equal, fourth longer, and slightly adherent at the base. Claws strong, arched, compressed, acute. Plumage compact, glossed. Wings long, with the first quill short, the fourth longest. Tail of moderate length, rounded. Roof of upper mandible concave, with five ridges; tongue emargined and papillate at the base, horny toward the end, thin-edged, with the point slit.

THE RAVEN

Corvus Corax, *Linn.*

PLATE CCXXIV.—Male.

Leaving to compilers the task of repeating the mass of fabulous and unedifying matter that has been accumulated in the course of ages, respecting this and other remarkable species of birds, and arranging the materials which I obtained during years of laborious but gratifying observation, I will now attempt to delineate the manners of this species which I have noted in the course of a life chiefly spent in studying the birds of my native land, where I have had abundant opportunities of contemplating their manners, and of

Raven.

Old Male

Thick-Shell bark Hickory.

Drawn from Nature by J.J.Audubon,F.R.S.F.L.S. Lith^d Printed & Col^d by J. T. Bowen Phila^a

admiring the manifestations of the glorious perfections of their Omnipotent Creator.

There, amid the tall grass of the far-extended prairies of the West, in the solemn forests of the North, on the heights of the midland mountains, by the shores of the boundless ocean, and on the bosom of the vast lakes and magnificent rivers, have I sought to search out the things which have been hidden since the creation of this wondrous world, or seen only by the naked Indian, who has, for unknown ages, dwelt in the gorgeous but melancholy wilderness. Who is the stranger to my own dear country that can form an adequate conception of the extent of its primeval woods,—of the glory of those columnar trunks, that for centuries have waved in the breeze, and resisted the shock of the tempest,—of the vast bays of our Atlantic coasts, replenished by thousands of streams, differing in magnitude, as differ the stars that sparkle in the expanse of the pure heavens,—of the diversity of aspect in our western plains, our sandy southern shores interspersed with reedy swamps, and the cliffs that protect our eastern coasts,—of the rapid currents of the Mexican Gulf, and the rushing tide streams of the Bay of Fundy,—of our ocean-lakes, our mighty rivers, our thundering cataracts, our majestic mountains, rearing their snowy heads into the calm regions of the clear cold sky?

In the United States, the Raven is in some measure a migratory bird, individuals retiring to the extreme south during severe winters, but returning towards the Middle, Western, and Northern Districts at the first indications of milder weather. A few are known to breed in the mountainous portions of South Carolina, but instances of this kind are rare, and are occasioned merely by the security afforded by inaccessible precipices, in which they may rear their young. Their usual places of resort are the mountains, the abrupt banks of rivers, the rocky shores of lakes, and the cliffs of thinly-peopled or deserted islands. It is in such places that these birds must be watched and examined, before one can judge of their natural habits, as manifested amid their freedom from the dread of their most dangerous enemy, the lord of the creation.

There, through the clear and rarified atmosphere, the Raven spreads his glossy wings and tail, and, as he onward sails, rises higher and higher each bold sweep that he makes, as if conscious that the nearer he approaches the sun, the more splendent will become the tints of his plumage. Intent on convincing his mate of the fervour and constancy of his love, he now gently glides beneath her, floats in the buoyant air, or sails by her side. Would that I could describe to you, reader, the many musical inflections by means of which they hold converse during these amatory excursions! These sounds doubtless express their pure conjugal feelings, confirmed and rendered

more intense by long years of happiness in each other's society. In this manner they may recall the pleasing remembrance of their youthful days, recount the events of their life, and express the pleasure they enjoy.

Now, their matins are over; the happy pair are seen to glide towards the earth in spiral lines; they alight on the boldest summit of a rock, so high that you can scarcely judge of their actual size; they approach each other, their bills meet, and caresses are exchanged as tender as those of the gentle Turtle Dove. Far beneath, wave after wave dashes in foam against the impregnable sides of the rocky tower, the very aspect of which would be terrific to almost any other creatures than the sable pair, which for years have resorted to it, to rear the dearly-cherished fruits of their connubial love. Midway between them and the boiling waters, some shelving ledge conceals their eyrie. To it they now betake themselves, to see what damage it has sustained from the peltings of the winter tempests. Off they fly to the distant woods for fresh materials with which to repair the breach; or on the plain they collect the hair and fur of quadrupeds; or from the sandy beach pick up the weeds that have been washed there. By degrees, the nest is enlarged and trimmed, and when every thing has been rendered clean and comfortable, the female deposits her eggs, and begins to sit upon them, while her brave and affectionate mate protects and feeds her, and at intervals takes her place.

All around is now silent save the hoarse murmur of the waves, or the whistling sounds produced by the flight of the waterfowl travelling towards the northern regions. At length the young burst the shell, when the careful parents, after congratulating each other on the happy event, disgorge some half-macerated food, which they deposit in their tender mouths. Should the most daring adventurer of the air approach, he is attacked with fury and repelled. As the young grow up, they are urged to be careful and silent:—a single false movement might precipitate them into the abyss below; a single cry during the absence of their parents might bring upon them the remorseless claws of the swift Peregrine or Jerfalcon. The old birds themselves seem to improve in care, diligence, and activity, varying their course when returning to their home, and often entering it when unexpected. The young are now seen to stand on the edge of the nest; they flap their wings, and at length take courage and fly to some more commodious and not distant lodgment. Gradually they become able to follow their parents abroad, and at length search for maintenance in their company, and that of others, until the period of breeding arrives, when they separate in pairs, and disperse.

Notwithstanding all the care of the Raven, his nest is invaded wherever it is found. His usefulness is forgotten, his faults are remembered and multiplied by imagination; and whenever he presents himself he is shot at, because

from time immemorial ignorance, prejudice, and destructiveness have operated on the mind of man to his detriment. Men will peril their lives to reach his nest, assisted by ropes and poles, alleging merely that he has killed one of their numerous sheep or lambs. Some say they destroy the Raven because he is black; others, because his croaking is unpleasant and ominous! Unfortunate truly are the young ones that are carried home to become the wretched pets of some ill-brought-up child! For my part, I admire the Raven, because I see much in him calculated to excite our wonder. It is true that he may sometimes hasten the death of a half-starved sheep, or destroy a weakly lamb; he may eat the eggs of other birds, or occasionally steal from the farmer some of those which he calls his own; young fowls also afford precious morsels to himself and his progeny;—but how many sheep, lambs, and fowls are saved through his agency! The more intelligent of our farmers are well aware that the Raven destroys numberless insects, grubs, and worms; that he kills mice, moles, and rats, whenever he can find them; that he will seize the weasel, the young opossum, and the skunk; that, with the perseverance of a cat, he will watch the burrows of foxes, and pounce on the cubs; our farmers also are fully aware that he apprises them of the wolf's prowlings around their yard, and that he never intrudes on their corn-fields except to benefit them;—yes, good reader, the farmer knows all this well, but he also knows his power, and, interfere as you may, with tale of pity or of truth, the bird is a Raven, and, as LAFONTAINE has aptly and most truly said, "La loi du plus fort est toujours la meilleure!"

The flight of the Raven is powerful, even, and at certain periods greatly protracted. During calm and fair weather it often ascends to an immense height, sailing there for hours at a time; and although it cannot be called swift, it propels itself with sufficient power to enable it to contend with different species of Hawks, and even with Eagles when attacked by them. It manages to guide its course through the thickest fogs of the countries of the north, and is able to travel over immense tracts of land or water without rest.

The Raven is omnivorous, its food consisting of small animals of every kind, eggs, dead fish, carrion, shell-fish, insects, worms, nuts, berries, and other kinds of fruit. I have never seen one attack a large living animal, as the Turkey Buzzard and Carrion Crow are wont to do; but I have known it follow hunters when without dogs, to feed on the offals of the game, and carry off salted fish when placed in a spring to freshen. It often rises in the air with a shell fish for the purpose of breaking it by letting it fall on a rock. Its sight is exceedingly acute, but its smell, if it possesses the sense, is weak. In this respect, it bears a great resemblance to our Vultures.

The breeding season of this bird varies, according to the latitude, from the

beginning of January to that of June. I have found young Ravens on the banks of the Lehigh and the Susquehanna rivers on the 1st of May; about ten days later on those of the majestic Hudson; in the beginning of June on the island of Grand Manan off the Bay of Fundy; and at Labrador, as late as the middle of July. The nest is always placed in the most inaccessible parts of rocks that can be found, never, I believe, on trees, at least in America. It is composed of sticks, coarse weeds, wool, and bunches of hair of different animals. The eggs are from four to six, of a rather elongated oval shape, fully two inches in length, having a ground colour of light greenish-blue, sprinkled all over with small irregular blotches of light purple and yellowish-brown, so numerous on the larger end, as almost entirely to cover it. The period of incubation extends to nineteen or twenty days. Only one brood is raised in a year, unless the eggs or young be removed or destroyed. The young remain in the nest many weeks before they are able to fly. The old birds return to the same nest for years in succession; and should one of them be destroyed, the other will lead a new partner to the same abode. Even after the young have made their appearance, should one of the parents be killed, the survivor usually manages to find a mate, who undertakes the task of assisting in feeding them.

The Raven may be said to be of a social disposition, for, after the breeding season, flocks of forty, fifty, or more, may sometimes be seen, as I observed on the coast of Labrador, and on the Missouri. When domesticated, and treated with kindness, it becomes attached to its owner, and will follow him about with all the familiarity of a confiding friend. It is capable of imitating the human voice, so that individuals have sometimes been taught to enunciate a few words with great distinctness.

On the ground the Raven walks in a stately manner, its motions exhibiting a kind of thoughtful consideration, almost amounting to gravity. While walking it frequently moves up its wings as if to keep their muscles in action. I never knew an instance of their roosting in the woods, although they frequently alight on trees, to which they sometimes resort for the purpose of procuring nuts and other fruits. They usually betake themselves at night to high rocks, in situations protected from the northerly winds. Possessing to all appearance the faculty of judging of the coming weather, they remove from the higher, wild and dreary districts where they breed, into the low lands, at the approach of winter, when they are frequently seen along the shores of the sea, collecting the garbage that has been cast to land, or picking up the shell-fish as the tide retires. They are vigilant, industrious, and, when the safety of their young or nest is at stake, courageous, driving away Hawks and Eagles whenever they happen to come near, although in no case do they venture to attack man. Indeed, it is extremely difficult to

get within shot of an old Raven. I have more than once been only a few yards from one while it was sitting on its eggs, having attained this proximity by creeping cautiously to the overhanging edge of a precipice; but the moment the bird perceived me, it would fly off apparently in much confusion. They are so cunning and wary, that they can seldom be caught in a trap; and they will watch one intended for a fox, a wolf, or a bear, until one of these animals comes up, and is taken, when they will go to it and eat the alluring bait.

While at Little Macatina Harbour, on the coast of Labrador, in July 1833, I saw a Raven's nest placed under the shelvings of the rugged and fearful rocks that form one side of that singular place. The young were nearly fledged, and now and then called loudly to their parents, as if to inquire why our vessel had come there. One of them in attempting to fly away fell into the water. It was secured, when I trimmed one of its wings, and turned it loose on the deck along with some other birds. The mother, however, kept sailing high over the schooner, repeating some notes, which it seems the young one understood, for it walked carefully to the end of the bowsprit, opened its wings, and tried to fly, but being unable, fell into the water and was drowned. In a few days the rest of the family left the place, and we saw no more of them. Some of the sailors who had come to the harbour eight years in succession, assured me that they had always observed the Ravens breeding there. My whole party found it impossible to shoot one of the old ones, who went to the nest and left it with so much caution, that the task of watching them became irksome. One afternoon I concealed myself under a pile of detached rocks for more than two hours. The young frequently croaked as I was waiting there, but no parent came; so I left the place, but the next moment the female was seen from the deck of the Ripley. She alighted in the nest, fed her young, and was off again before I could reach within shooting distance. It was at this place that I observed how singularly well those birds could travel to and from their nest, at a time when I could not, on account of the fog, see them on wing at a greater distance than twenty or thirty yards. On the 29th of the same month, young Ravens were seen in flocks with their parents; but they were already very shy.

I found a nest of this bird at a narrow part of the Lehigh in Pennsylvania, in a deep fissure of the rocks, not more than twenty feet above the water, the security afforded by which had probably been considered as equivalent to that which might have been gained by a greater height of rock. The nest, in fact, hung over the stream, so that it was impossible to reach it either from above or from below. Many years ago, I saw another placed immediately beneath the arch of the Rock Bridge in Virginia. It was

situated on a small projecting stone scarcely a foot square; yet the Raven appeared quite satisfied as to the security of her brood on that narrow bed. This extraordinary production of Nature is placed on the ascent of a hill, which appears to have been rent asunder by some convulsion of the earth. The fissure is about 200 feet deep, and above 80 in width under the arch, narrowing to 40 or so at the bottom. The thickness of the arch probably exceeds 30 feet, and increases at either end. At the bottom is seen the water of what is called Cedar Creek, gently meandering in its rocky channel. The place, when I saw it, was graced by handsome trees, and in some positions there was a pleasing view of the "Blue Ridge" and the "North Mountain." Tradition reports that General WASHINGTON threw a dollar over the bridge from the creek below.

I have already stated that some Ravens breed as far south as the Carolinas. The place to which they resort for this purpose is called the Table Mountain, which is situated in the district of Pendleton, and of which I extract an account from DRAYTON'S Views of South Carolina. "The Table Mountain is the most distinguished of all the eminences of the State. Its height exceeds 3000 feet, and thirty farms may be discerned at any one view from its top by the unaided eye. Its side is an abrupt precipice of solid rock, 300 feet deep, and nearly perpendicular. The valley underneath appears to be as much below the level as the top of the mountain towers above it. This precipice is called the Lover's Leap. To those who are in the valley, it looks like an immense wall stretching up to heaven, and the awe which it inspires is considerably increased by the quantity of bones which lie whitening at its base,—the remains of various animals which had incautiously approached too near its edge. Its summit is often enveloped in clouds. The gradual ascent of the country from the sea-coast to this western extremity of the State, added to the height of this mountain, must place its top more than 4000 feet above the level of the Atlantic Ocean; an eminence from which vessels crossing the bar of Charleston might be seen with the aid of such improved glasses as are now in use. Large masses of snow tumble from the side of this mountain in the winter season, the fall of which has been heard seven miles. Its summit is the resort of deer and bears. The woods produce mast in abundance; Wild Pigeons resort to it in such numbers as sometimes to break the limbs of trees on which they alight."

A friend of mine, who is an excellent observer of the habits of birds, has told me that he saw a Raven's nest in the high lands of New York placed in a deep fissure of a rock, in the immediate vicinity of that of a Golden Eagle. I chanced one day, while in the Great Pine Forest of Pennsylvania, to stop, for the purpose of resting and refreshing myself, at a camp with JEDIAH IRISH. We had seen some Ravens that day, and our conversation returning

to them, the person employed in preparing the food of the woodcutters told us, that whenever she chanced to place a salt mackerel or other fish in the brook running from the spring near the camp, "the Raven was sure to carry it away in less than an hour." She firmly believed that it had the power of smelling the fish as she carried it from the hut to the water. We went to the spot with her, and, leaving a fish there, returned to our homely meal, but on visiting the place several hours after, we found it untouched. "The Raven perhaps smelt the powder in our guns!" At all events, it did not choose to come that day.

The flesh of this bird is tough and unfit for food, but this indicates its great strength. When wounded, it bites severely, and scratches with its claws as fiercely as a Hawk. Like the latter also, it disgorges indigestible substances, as bones, hair, and feathers.

This species is plentiful on the Rocky Mountains and along the Columbia river, and also abounds in the Fur Countries, and, according to Dr. RICHARDSON, visits the remotest islands of the Polar seas. It frequents the Barren Grounds even in the most intense winter colds, its movements being directed in a great measure by those of the herds of Rein Deer, Musk Oxen, and Bison, which it follows, ready to assist in devouring such as are killed by beasts of prey or by accident. He relates a curious instance of the propensity it shews to appropriate to itself any metallic substance. "Mr. KENDAL, in crossing the heights of land which divide the waters that flow towards Hudson's Bay, from those which fall into the Arctic Sea, saw a Raven flying off with something in his claws, pursued by a number of his clamorous companions. The bird being fired at dropped the object of contention, which proved to be the lock of a chest!" Mr. TOWNSEND informs me that on the Columbia river the Ravens constantly attend on the salmon fisheries, and that during winter they are very expert at discovering the small tents raised by the Indians for the purpose of saving their fish. They are in all those districts constant attendants upon the hunters, for the purpose of devouring the offal of all such game as may be slaughtered.

Although I have found eggs of this species which measured rather more than two inches in length, by an inch and three-eighths, others did not measure more than one inch and seven eighths by an inch and four-twelfths. They also differ considerably in the tint of their ground-colour, as well as in their markings.

RAVEN, *Corvus Corax*, Wils. Amer. Orn., vol. ix. p. 136.
CORVUS CORAX, Bonap. Syn., p. 56.
CORVUS CORAX, *Raven*, Swains. and Rich. F. Bor. Amer., vol. ii. p. 290.
RAVEN, *Corvus Corax*, Nutt. Man., vol. i. p. 202.
RAVEN, *Corvus Corax*, Aud. Orn. Biog., vol. ii. p. 1; vol. v. p. 476.

Feathers of the fore neck lanceolate and elongated; tail much rounded; plumage deep black, glossed with blue and purplish blue, the lower parts with green. Young with the feathers of the throat oblong, the upper parts less glossy, the lower dull greyish-black.

Male, 26, 50.

From the Highlands of South Carolina, northward to the Polar Seas. Missouri, Kentucky, Ohio, Canada. Rocky Mountains and Columbia river. Rather common in some parts.

The Thick Shell-Bark Hickory.

Juglans sulcata, *Pursh*, Flor. Amer., vol. ii. p. 637.—J. laciniosa, *Mich.* Arbr. Forest. de l'Amer. Sept., vol. i. p. 199, pl. 8.—Monœcia Polyandria, *Linn.*—Terebinthaceæ, *Juss.*

Leaves pinnate, with about nine obovato-lanceolate, acuminate, serrate leaflets, which are downy beneath, the terminal one nearly sessile and attenuated at the base; fruit roundish, with four longitudinal prominences; nut nearly globular, slightly compressed, smooth, with an elongated tip. It occurs from Louisiana to Massachusetts, although not, I believe, farther eastward, and also exists in the whole of the western country, as far as I have travelled. It grows in almost every kind of soil, and in some parts acquires a great size. When detached, it forms a fine ornament to the meadows and fields. The wood, which is hard and extremely pliant, is greatly esteemed for various purposes, and when kept dry is lasting. Excepting the Pecan nuts, none in America are considered equal to those of the present species. They are generally collected after falling, late in autumn, and are abundant in most of our markets, large quantities being shipped to Europe.

Common American Crow.

Male.

Black Walnut.

Drawn from Nature by J.J.Audubon,F.R.S.F.L.S. Lith.ª Printed & Col.ª by J. T. Bowen. Phila.ª

THE AMERICAN CROW.

CORVUS AMERICANUS.

PLATE CCXXV.—MALE.

The Crow is an extremely shy bird, having found familiarity with man no way to his advantage. He is also cunning—at least he is so called, because he takes care of himself and his brood. The state of anxiety, I may say of terror, in which he is constantly kept, would be enough to spoil the temper of any creature. Almost every person has an antipathy to him, and scarcely one of his race would be left in the land, did he not employ all his ingenuity, and take advantage of all his experience, in counteracting the evil machinations of his enemies. I think I see him perched on the highest branch of a tree, watching every object around. He observes a man on horseback travelling towards him; he marks his movements in silence. No gun does the rider carry,—no, that is clear; but perhaps he has pistols in the holsters of his saddle!—of that the Crow is not quite sure, as he cannot either see them or "smell powder." He beats the points of his wings, jerks his tail once or twice, bows his head, and merrily sounds the joy which he feels at the moment. Another man he spies walking across the field towards his stand, but he has only a stick. Yonder comes a boy shouldering a musket loaded with large shot for the express purpose of killing Crows! The bird immediately sounds an alarm; he repeats his cries, increasing their vehemence the nearer his enemy advances. All the Crows within half a mile round are seen flying off, each repeating the well known notes of the trusty watchman, who, just as the young gunner is about to take aim, betakes himself to flight. But alas, he chances unwittingly to pass over a sportsman, whose dexterity is greater; the mischievous prowler aims his piece, fires;—down towards the earth, broken-winged, falls the luckless bird in an instant. "It is nothing but a crow," quoth the sportsman, who proceeds in search of game, and leaves the poor creature to die in the most excruciating agonies.

Wherever within the Union the laws encourage the destruction of this species, it is shot in great numbers for the sake of the premium offered for each Crow's head. You will perhaps be surprised, reader, when I tell you that in one single State, in the course of a season, 40,000 were shot, besides the multitudes of young birds killed in their nests. Must I add to this slaughter other thousands destroyed by the base artifice of laying poisoned

grain along the fields to tempt these poor birds? Yes, I will tell you of all this too. The natural feelings of every one who admires the bounty of Nature in providing abundantly for the subsistence of all her creatures, prompt me to do so. Like yourself, I admire all her wonderful works, and respect her wise intentions, even when her laws are far beyond our limited comprehension.

The Crow devours myriads of grubs every day of the year, that might lay waste the farmer's fields; it destroys quadrupeds innumerable, every one of which is an enemy to his poultry and his flocks. Why then should the farmer be so ungrateful, when he sees such services rendered to him by a providential friend, as to persecute that friend even to the death? Unless he plead ignorance, surely he ought to be found guilty at the bar of common sense. Were the soil of the United States, like that of some other countries, nearly exhausted by long continued cultivation, human selfishness in such a matter might be excused, and our people might look on our Crows, as other people look on theirs; but every individual in the land is aware of the superabundance of food that exists among us, and of which a portion may well be spared for the feathered beings, that tend to enhance our pleasures by the sweetness of their song, the innocence of their lives, or their curious habits. Did not every American open his door and his heart to the wearied traveller, and afford him food, comfort and rest, I would at once give up the argument; but when I know by experience the generosity of the people, I cannot but wish that they would reflect a little, and become more indulgent toward our poor, humble, harmless, and even most serviceable bird, the Crow.

The American Crow is common in all parts of the United States. It becomes gregarious immediately after the breeding season, when it forms flocks sometimes containing hundreds, or even thousands. Towards autumn, the individuals bred in the Eastern Districts almost all remove to the Southern States, where they spend the winter in vast numbers.

The voice of our Crow is very different from that of the European species which comes nearest to it in appearance, so much so indeed, that this circumstance, together with others relating to its organization, has induced me to distinguish it, as you see, by a peculiar name, that of *Corvus Americanus*. I hope you will think me excusable in this, should my ideas prove to be erroneous, when I tell you that the Magpie of Europe is assuredly the very same bird as that met with in the western wilds of the United States, although some ornithologists have maintained the contrary, and that I am not disposed to make differences in name where none exist in nature. I consider our Crow as rather less than the European one, and the form of its tongue does not resemble that of the latter bird; besides the Carrion Crow of that country seldom associates in numbers, but remains in pairs, excepting

immediately after it has brought its young abroad, when the family remains undispersed for some weeks.

Wherever our Crow is abundant, the Raven is rarely found, and *vice versa*. From Kentucky to New Orleans, Ravens are extremely rare, whereas in that course you find one or more Crows at every half mile. On the contrary, far up the Missouri, as well as on the coast of Labrador, few Crows are to be seen, while Ravens are common. I found the former birds equally scarce in Newfoundland.

Omnivorous like the Raven, our Crow feeds on fruits, seeds, and vegetables of almost every kind; it is equally fond of snakes, frogs, lizards, and other small reptiles; it looks upon various species of worms, grubs and insects as dainties; and if hard pressed by hunger, it will alight upon and devour even putrid carrion. It is as fond of the eggs of other birds as is the Cuckoo, and, like the Titmouse, it will, during a paroxysm of anger, break in the skull of a weak or wounded bird. It delights in annoying its twilight enemies the Owls, the Opossum, and the Racoon, and will even follow by day a fox, a wolf, a panther, or in fact any other carnivorous beast, as if anxious that man should destroy them for their mutual benefit. It plunders the fields of their superabundance, and is blamed for so doing, but it is seldom praised when it chases the thieving Hawk from the poultry-yard.

The American Crow selects with uncommon care its breeding place. You may find its nest in the interior of our most dismal swamps, or on the sides of elevated and precipitous rocks, but almost always as much concealed from the eye of man as possible. They breed in almost every portion of the Union, from the Southern Cape of the Floridas to the extremities of Maine, and probably as far westward as the Pacific Ocean. The period of nestling varies from February to the beginning of June, according to the latitude of the place. Its scarcity on the coast of Labrador, furnishes one of the reasons that have induced me to believe it different from the Carrion Crow of Europe; for there I met with several species of birds common to both countries, which seldom enter the United States farther than the vicinity of our most eastern boundaries.

The nest, however, greatly resembles that of the European Crow, as much, in fact, as that of the American Magpie resembles the nest of the European. It is formed externally of dry sticks, interwoven with grasses, and is within thickly plastered with mud or clay, and lined with fibrous roots and feathers. The eggs are from four to six, of a pale greenish colour, spotted and clouded with purplish-grey and brownish-green. In the Southern States they raise two broods in the season, but to the eastward seldom more than one. Both sexes incubate, and their parental care and mutual attachment are not surpassed by those of any other bird. Although the nests of this species often

may be found near each other, their proximity is never such as occurs in the case of the Fish-Crow, of which many nests may be seen on the same tree.

When the nest of this species happens to be discovered, the faithful pair raise such a hue and cry that every Crow in the neighbourhood immediately comes to their assistance, passing in circles high over the intruder until he has retired, or following him, if he has robbed it, as far as their regard for the safety of their own will permit them. As soon as the young leave the nest, the family associates with others, and in this manner they remain in flocks till spring. Many Crows' nests may be found within a few acres of the same wood, and in this particular their habits accord more with those of the Rooks of Europe (*Corvus frugilegus*), which breed and spend their time in communities. The young of our Crow, like that of the latter species, are tolerable food when taken a few days before the period of their leaving the nest.

The flight of the American Crow is swift, protracted, and at times performed at a great elevation. They are now and then seen to sail among the Turkey Buzzards or Carrion Crows, in company with their relatives the Fish-Crows, none of the other birds, however, showing the least antipathy towards them, although the Vultures manifest dislike whenever a White-headed Eagle comes among them.

In the latter part of autumn and in winter, in the Southern States, this Crow is particularly fond of frequenting burnt grounds. Even while the fire is raging in one part of the fields, the woods, or the prairies, where tall grass abounds, the Crows are seen in great numbers in the other, picking up and devouring the remains of mice and other small quadrupeds, as well as lizards, snakes, and insects, which have been partly destroyed by the flames. At the same season they retire in immense numbers to roost by the margins of ponds, lakes, and rivers, covered with a luxuriant growth of rank weeds or cat-tails. They may be seen proceeding to such places more than an hour before sunset, in long straggling lines, and in silence, and are joined by the Grakles, Starlings, and Reed-birds, while the Fish-Crows retire from the very same parts to the interior of the woods many miles distant from any shores.

No sooner has the horizon brightened at the approach of day, than the Crows sound a reveillé, and then, with mellowed notes, as it were, engage in a general thanksgiving for the peaceful repose they have enjoyed. After this they emit their usual barking notes, as if consulting each other respecting the course they ought to follow. Then parties in succession fly off to pursue their avocations, and relieve the reeds from the weight that bent them down.

The crow is extremely courageous in encountering any of its winged

enemies. Several individuals may frequently be seen pursuing a Hawk or an Eagle with remarkable vigour, although I never saw or heard of one pouncing on any bird for the purpose of preying on it. They now and then tease the Vultures, when those foul birds are alighted on trees, with their wings spread out, but they soon desist, for the Vultures pay no attention to them.

The most remarkable feat of the Crow, is the nicety with which it, like the Jay, pierces an egg with its bill, in order to carry it off, and eat it with security. In this manner I have seen it steal, one after another, all the eggs of a wild Turkey's nest. You will perceive, reader, that I endeavour to speak of the Crow with all due impartiality, not wishing by any means to conceal its faults, nor withholding my testimony to its merits, which are such as I can well assure the farmer, that were it not for its race, thousands of cornstalks would every year fall prostrate, in consequence of being cut over close to the ground by the destructive grubs which are called "cut-worms."

I never saw a pet Crow in the United States, and therefore cannot say with how much accuracy they may imitate the human voice, or, indeed, if they possess the power of imitating it at all, which I very much doubt, as in their natural state they never evince any talents for mimicry. I cannot say if it possess the thieving propensities attributed by authors to the European Crow.

Its gait, while on the ground, is elevated and graceful, its ordinary mode of progression being a sedate walk, although it occasionally hops when under excitement. It not unfrequently alights on the backs of cattle, to pick out the worms lurking in their skin, in the same manner as the Magpie, Fish-Crow, and Crow-bird. Its note or cry may be imitated by the syllables *cāw, cāw, cāw,* being different from the cry of the European Carrion Crow, and resembling the distant bark of a small dog.

At Pittsburg in Pennsylvania I saw a pair of Crows perfectly white, in the possession of Mr. LAMPDIN, the owner of the museum there, who assured me that five which were found in the nest were of the same colour.

Although the common American Crow ranges from the Gulf of Mexico to the shores of the Columbia river, where it is abundant, as well as on the Rocky Mountains, it does not, according to Dr. RICHARDSON, proceed farther north than the 55th parallel of latitude, nor approach within five or six hundred miles of Hudson's Bay, appearing in the Fur Countries during the summer only. I found it abundant in the Texas, where it breeds. The eggs measure one inch five-eighths in length, an inch and one-eighth in breadth.

I have placed the pensive oppressed Crow of our country on a beautiful

branch of the *black walnut* tree, loaded with nuts, on the lower twig of which I have represented the delicate nest of our Common Humming-bird.

In conclusion, I would again address our farmers, and tell them that if they persist in killing Crows, the best season for doing so is when their corn begins to ripen.

CROW, *Corvus Corone*, Wils. Amer. Orn., vol. iv. p. 79.
CORVUS CORONE, Bonap. Syn., p. 56.
CORVUS CORONE, Swains. and Rich. F. Bor. Amer., vol. ii. p. 291.
CROW, *Corvus Corone*, Nutt. Man., vol. i. p. 209.
AMERICAN CROW, *Corvus Americanus*, Aud. Orn. Biog., vol. ii. p. 317; vol. v. p. 477

Feathers of the head and neck oval and blended; fourth quill longest; general colour black, with purplish-blue reflections; the hind parts of the neck tinged with purplish-brown; the lower parts less glossy. Young of a rather dull brownish-black, with the blue and purple reflections much less brilliant.

Male, 18, 38.

Generally distributed from the Gulf of Mexico to Columbia river; throughout the interior, and along the coast, northward to lat. 55°. Congregates in immense numbers in the Southern and Western States during winter.

A specimen preserved in spirits measures in length to end of tail 18¼ inches, to end of wings 17, to end of claws 16¼, extent of wings 35; wing from flexure 12¼; tail ½; bill along the ridge 2; tarsus 2¼.

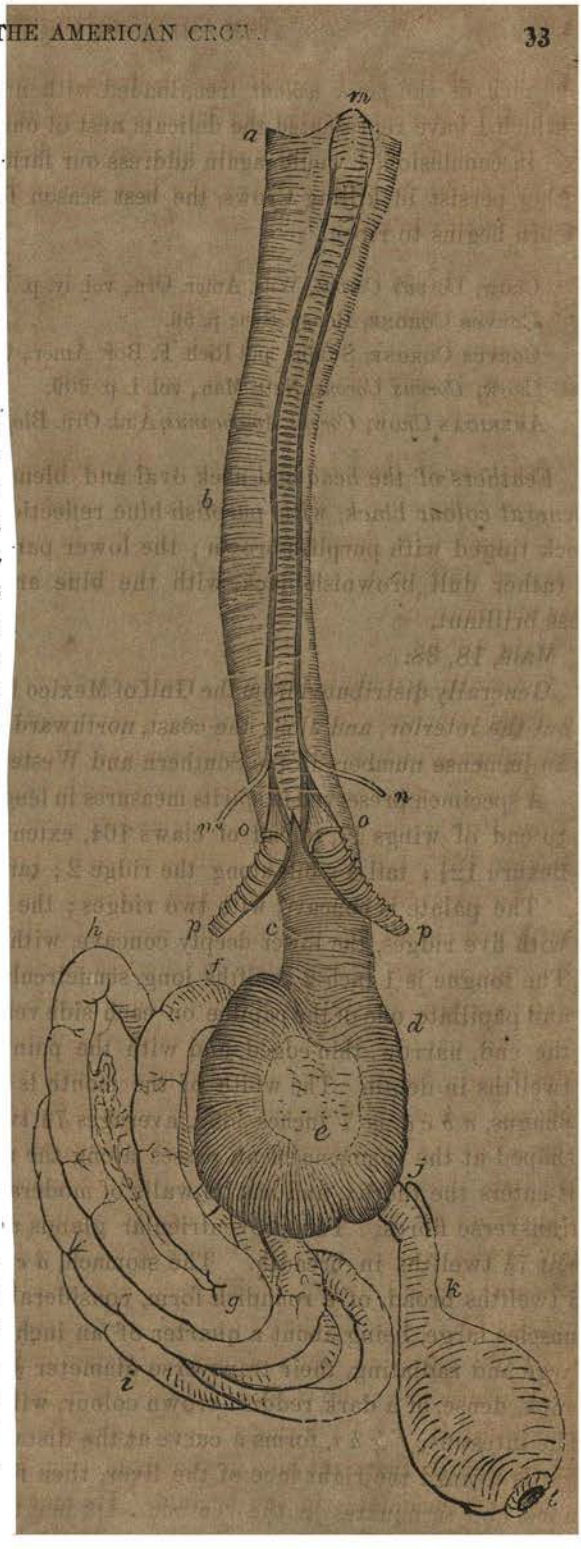
The palate is concave, with two ridges; the upper mandible internally with five ridges, the lower deeply concave, with a median prominent line. The tongue is 1 inch 2 twelfths long, semicircularly emarginate at the base and papillate, one of the papillæ on each side very large; it is horny toward the end, narrow, thin-edged, and with the point slit, the fissure being 1½ twelfths in depth. The width of the mouth is 1 inch 1 twelfth; the œsophagus, *a b c d*, is 7 inches long, averages 7½ twelfths in width, is funnel-shaped at the commencement, passes along the right side of the neck until it enters the thorax, and has its walls of moderate thickness, with external transverse fibres. The proventricular glands are very small, and form a belt 7½ twelfths in breadth. The stomach, *d e f*, is 1½ inches long, 1 inch 5 twelfths broad, of a roundish form, considerably compressed; its lateral muscles large, being about a quarter of an inch thick; its tendons, *e*, also large and radiating, their transverse diameter ½ inch; the cuticular lining thick, dense, of a dark reddish-brown colour, with broad longitudinal rugæ. The intestine, *f g h l*, forms a curve at the distance of 2½ inches, bends forwards toward the right lobe of the liver, then forms four circular convolutions, and terminates in the rectum. Its length is 29 inches, its width 4½

twelfths in the duodenal portion, and 4 twelfths in the rest of its length; the cloaca, *k l*, globular and about 1 inch in diameter; the cœca small, *j*, cylindrical, 5½ twelfths long and 1 twelfth in breadth.

In another male, the intestine is 42 inches long, from 4½ twelfths to 4 twelfths in width; the cœca ½ inch long, and 1 twelfth in width. In a third, a male also, the intestine is 41½ inches long; and in a fourth 33 inches. This statement shews that the intestine of birds sometimes varies very considerably in the same species.

In the stomachs of two of them were numerous seeds of a brownish-yellow colour, globular, and 1 twelfth in diameter, together with a few particles of quartz. That of another contained a mass of pounded sumach berries.

The trachea, *m o*, of the first is 5 inches long, a little flattened, 4½ twelfths in breadth, at the commencement, 3½ twelfths for 2 inches, near the lower part enlarging to 4 twelfths, and again contracting to 2¾ twelfths. The inferior larynx, *o o*, is much com-



pressed, with 2 large dimidiate rings. The rings are broad, firm, 56 in number. The bronchi, *o p*, *o p*, are wide, of about 15 half rings. The muscles are the same as in the Thrushes and Warblers, there being four pairs of inferior laryngeal.

The Black Walnut

Juglans nigra, *Willd.*, Sp. Pl., vol. iv. p. 456. *Pursh.* Flor. Amer. Sept., vol. ii. p. 636. *Mich.*, Arbr. Forest., vol. i. p. 157, pl. 1.—Monœcia Polyandria, *Linn.*—Terebinthaceæ, *Juss.*

The *black walnut* of the United States is generally a tree of beautiful form, and often, especially in the Western and Southern States, attains a great size. Wherever it is found, you may calculate on the land being of good quality; the wood is very firm, of a dark brown tint, veined, and extremely useful for domestic purposes, many articles of furniture being made of it. It is also employed in ship-building. When used for posts or fence rails, it resists the action of the weather for many years. The nuts are gathered late in autumn, and although rather too oily, are eaten and considered good by many persons. The husking of them is, however, a disagreeable task, as their covering almost indelibly stains every object with which it comes in contact.

THE FISH-CROW.

Corvus ossifragus. *Wils.*

PLATE CCXXVI.—Male and Female.

This may be said to be the only species of *Black-bird* found in the United States that is not constantly subjected to persecution. You would suppose it fully aware of its privileges, were you to witness the liveliness of its motions, and to listen to its continued chatter. While the Raven and the Common Crow are ever on the watch to escape the effects of the enmity which man harbours towards them, the Fish-Crow pays little attention to

Fish Crow.

1. Male. 2. Female.

Honey Locust.

Drawn from Nature by J.J.Audubon,F.R.S.F.L.S. Lith.ª Printed & Col.ª by J. T. Bowen, Philad.ª

him as he approaches, and even enters his garden to feed on his best fruits. Hundreds are seen to alight on the trees near the towns and cities placed along our southern shores; many fly over or walk about the pools and rivers, and all pursue their avocations without apprehension of danger from the lords of the land. This sense of security arises entirely from the circumstance that man generally believes the bird to be perfectly inoffensive, and glad am I, reader, that it at least bears so good a character.

The Fish-Crow is almost entirely confined to the maritime districts of the Southern States, and there it abounds at all seasons. Those which migrate proceed to the eastward about the beginning of April, and some go as far as New York, where they are, however, rather rare. They ascend the Delaware river in Pennsylvania, nearly up to its source, and some breed in the State of Jersey every year; but all return to the south at the approach of cold weather. Some go up the Mississippi for four or five hundred miles, but I have not seen any higher on that stream, which they generally leave to return to the vicinity of the sea-shore in the winter season. In East Florida, where they abound, I found them breeding in February, in South Carolina about the 20th of March, and in New Jersey a month later.

While on the St. John's river in Florida, during the month of February, I saw flocks of Fish-Crows, consisting of several hundred individuals, sailing high in the air, somewhat in the manner of the Raven, when the whole appeared paired, for I could see that, although in such numbers, each pair moved distinctly apart. These aërial excursions would last for hours, during the calm of a fine morning, after which the whole would descend toward the water, to pursue their more usual avocations in all the sociability of their nature. When their fishing, which lasted about half an hour, was over, they would alight in flocks on the live oaks and other trees near the shores, and there keep up their gabbling, pluming themselves for hours. Once more they returned to their fishing-grounds, where they remained until about an hour from sunset, when they made for the interior, often proceeding thirty or forty miles, to roost together in the trees of the *loblolly pine*. They scarcely utter a single note during this retreat, but no sooner does the first glimmer of day appear than the woods around echo to their matin cries of gratulation. They depart at once for the sea-shores, noisy, lively, and happy. Now you find them busily engaged over the bays and rivers, the wharfs, and even the salt-ponds and marshes, searching for small fry, which they easily secure with their claws as they pass close over the water, and picking up any sort of garbage suited to their appetite.

Like the Raven, the Common Crow, or the Grakle, the Fish-Crow robs other birds of their eggs and young. I observed this particularly on the Florida Keys, where they even dared to plunder the nests of the Cormorant

and White Ibis, waiting with remarkable patience, perched in the neighbourhood, until these birds left their charge. They also frequently alight on large mud flats bordering the salt-water marshes, for the purpose of catching the small crabs called *fiddlers*. This they do with ease, by running after them or digging them out of the muddy burrows into which they retire at the approach of danger. I have frequently been amused, while standing on the "Levée" at New Orleans, to see the alacrity and audacity with which they pursued and attacked the smaller Gulls and Terns, to force them to disgorge the small fish caught by them within sight of the Crows, which, with all the tyrannical fierceness of the Lestris, would chase the sea birds with open bill, and extended feet and claws, dashing towards their victims with redoubled ardour, the farther they attempted to retreat. But as most Gulls are greatly superior in flight to the Crow, the black tyrants are often frustrated in their attempts, and obliged to return, and seek their food in the eddies by their own industry. They are able to catch fish alive with considerable dexterity, but cannot feed on the wing, and for that purpose are obliged to retire to some tree, stake, or sandbank; and like the Common Crow, the Magpie, and the Cow Bunting, they sometimes alight on the backs of cattle, to search there for the larvæ which frequently harbour in their skin.

During winter and spring, the Fish-Crows are very fond of feeding on many kinds of berries. After the frosts have imparted a rich flavour to those of the cassina (*Ilex cassina*), they are seen feeding on them in flocks often amounting to more than a hundred individuals. They are also fond of the berries of the holly (*Ilex opaca*), and of those of an exotic tree now naturalized in South Carolina, and plentiful about Charleston, the tallow-tree (*Stillingia sebifera*). The seeds of this tree, which is originally from China, are of a white colour when ripe, and contain a considerable quantity of an oily substance. In the months of January and February these trees are covered by the Crows, which greedily devour the berries. As spring advances, and the early fruits ripen, the Fish-Crows become fond of the mulberry, and select the choicest of the ripe figs, more especially when they are feeding their young. A dozen are often seen at a time, searching for the tree which has the best figs, and so troublesome do they become in the immediate vicinity of Charleston, that it is found necessary to station a man near a fig tree with a gun, not to burn powder to drive the Crows away by the smell, but to fire in good earnest at them. They eat pears also, as well as various kinds of huckleberries (*Vaccinium*), and I have seen them feeding on the berries of at least one species of smilax.

In the Floridas, Georgia, and the Carolinas, this species usually breeds on moderate-sized trees of the loblolly pine (*Pinus Tæda*), making its nest

generally about twenty or thirty feet from the ground, towards the extremities of the branches. In the State of New Jersey, where they are frequently killed in common with the larger Crow, in whose company they are often found, they are more careful, and place their nests in the interior of the deepest and most secluded swamps. The nest is smaller than that of the Common Crow, and is composed of sticks, moss, and grasses, neatly finished or lined with fibrous roots. The eggs are from four to six, and resemble those of the Common American Crow, but are smaller. I once found several nests of this Crow a few miles from Philadelphia, in the State of NewJersey, which were placed on high oaks and other trees. The birds, when disturbed, evinced much concern for the safety of their brood. Although I have found this species breeding in different districts, from February till May, I am unable to say decidedly whether it raises more than one brood in the year, although I am of opinion that it does not.

The common note of the Fish-Crow is different from that of the other species of the genus, resembling the syllables *ha, ha, hae*, frequently repeated. At times the sound of their voice seems as if a faint mimicry of that of the Common Crow; at others, one would suppose that they are troubled with a cough or cold. During the breeding season, their notes are much varied, and are not disagreeable.

Their flight is strong and protracted. While searching for food, these birds hover at a moderate height over the water; but when they rise in the air, to amuse themselves, they often reach a great elevation. While on the ground, their movements are graceful, and resemble those of the Boat-tailed Grakle. Like the other Crows, they are fond of replacing their wings, as it were, in their proper situations, frequently opening them out a little, and instantly closing them again.

On several occasions, when one of these birds had been wounded, I found on approaching it, that it had the power of disgorging its food somewhat in the manner of the Turkey Buzzard. When one is thus wounded, its companions come sailing over you, with a loud scream, in the manner of Gulls, so that several may be brought down by an expert marksman, as they are not easily intimidated at such times. Indeed, this species is easily approached, and may be killed without difficulty. I have known fifteen of them shot at once, while feeding on the cassina berries.

During winter, when they are chiefly frugivorous, they become extremely fat and very tender. Their pouch-like stomach, although large, is not muscular; the intestines are large and baggy. Very few are bare on the lower mandible; perhaps among a hundred which I have examined, not more than six or seven exhibited this nakedness, without removing the feathers of that part with the hand.

This species does not appear to proceed westward along the coast beyond the mouths of the Mississippi, where it is, however, abundant; for, after leaving this place, none were seen on our way to the Texas, where we found the Common American Crow in great abundance. The Fish-Crow is, however, plentiful on the Columbia river, according to Mr. TOWNSEND, who brought specimens from that country.

FISH-CROW, *Corvus ossifragus*, Wils. Amer. Orn., vol. v. p. 27.
CORVUS OSSIFRAGUS, Bonap. Syn., p. 57.
FISH-CROW, *Corvus ossifragus*, Nutt. Man., vol. i. p. 216.
FISH-CROW, *Corvus ossifragus*, Aud. Orn. Biog., vol. ii. p. 268; vol. v. p. 479.

Feathers of the head and neck oval and blended; third quill longest; tail considerably rounded, a small space at the base of the lower mandible on each side bare; general colour black, with blue and purple reflections above, blue and greenish beneath. Young brownish-black, with the blue and purple reflections less brilliant.

Male, 16, 33. Female, 15, 31.

From the mouths of the Mississippi upwards to Natchez, and along the Atlantic to New York. Common. Resident in the Southern States. Columbia river.

THE HONEY LOCUST.

GLEDITSCHIA TRIACANTHOS, *Willd.*, Sp. Pl., vol. iv. p. 1097. *Pursh*, Fl. Amer., vol. ii. p. 221.—POLYGAMIA DICŒCIA, *Linn.*—LEGUMINOSÆ, *Juss.*

Common Magpie

1 Male 2. Female

Drawn from Nature by J.J. Audubon F.R.S.F.L.S.

Lith.d Printed & Col.d by J. T. Bowen, Philad.a

GENUS II.—PICA, *Briss.* MAGPIE.

Bill of moderate length, stout, considerably compressed; upper mandible with the dorsal line declinate and arched, the sides convex, the ridge narrow, the edges nearly straight and overlapping, the notches faint, the tip declinate, and rather sharp; lower mandible with the angle rather long and wide, the dorsal line ascending and slightly convex, the edges inclinate, the tip narrow. Nostrils basal, lateral, roundish, covered by narrow stiff feathers directed forwards. Head large, ovate; neck rather short; body compact. Legs of moderate length, strong; tarsus stout, compressed, with eight scutella; toes of moderate length, stout, first large, stronger; lateral nearly equal, third considerably longer. Claws strong, arched, compressed, acute. Plumage full, soft, blended. Wings of moderate length, much rounded, the first quill very short, extremely narrow and falciform, fourth and fifth longest. Tail very long, graduated. Digestive organs as in Corvus.

THE COMMON MAGPIE.

PICA MELANOLEUCA, *Vieill.*

PLATE CCXXVII.—MALE AND FEMALE.

Although Magpies are abundant in the north-western portions of the United States, and are met with as far north as the Saskatchewan river, where, according to Dr. RICHARDSON, some of them spend the winter, none have yet been seen nearer the shores of the Atlantic than the head waters of the Red river in Louisiana, where they were seen in abundance by the lamented Colonel PIKE, then a lieutenant in the United States' army. His notice, although already published by WILSON, so well describes the habits of this species, that I repeat it here with pleasure. "Our horses," he says,

"were obliged to scrape the snow away to obtain their miserable pittance; and, to increase their misfortune, the poor animals were attacked by the Magpies, who, attracted by the scent of their sore backs, alighted on them, and, in defiance of their wincing and kicking, picked many places quite raw; the difficulty of procuring food rendering those birds so bold as to alight on our men's arms, and eat meat out of their hands." To CLARKE and LEWIS, however, is due the first introduction of this bird into the Fauna of the United States. These intrepid travellers first observed the Magpie near the great bend of the Missouri, although it was known to have been obtained at the fur-trading factories of the Hudson's Bay Company.

There is a difference of opinion as to the identity of the Magpie of America and that of Europe. THOMAS NUTTALL, who has seen those of both countries, as well as their nests, and observed their habits, assures me, that he looks upon them as clearly of the same species. Captain SABINE thought differently, and CHARLES BONAPARTE, after remarking in his "Observations on the Nomenclature of WILSON," that "it is not a little singular that this species, which is so common in every part of Europe, should be confined in its range on this continent to the western and northern regions," thus plainly indicating his belief of their identity, names it, in a list of European and North American Birds, published in London in April, 1838, "*Pica Hudsonica*, Nob." the European bird being at the same time ticketed "*Pica melanoleuca*." Mr. SWAINSON, in the Fauna Borcali-Americana, remarks on comparing them:—"We cannot perceive the slightest difference whereon to build even the character of a variety, much less a species;" and this truly is my own opinion.

The following notice regarding our bird was given me by my friend THOMAS NUTTALL:—"On the 15th of July, arriving at the borders of the Shoshonee, or Snake river, we first met with the Common Magpie on our route, mostly accompanied by the Raven, but there were no Crows. The young birds were so familiar and greedy, approaching the encampment in quest of food, as to be easily taken by the Indian boys, when they soon become reconciled to savage domesticity. The old birds were sufficiently shy, but the young were observed hopping and croaking around us, and tugging at any offal of flesh meat thrown out, like so many Vultures. Differing so far from the proscribed and persecuted Magpies of Europe, these, at least the young, seemed evidently to court the advantages of society in supplying them with food, and betrayed scarcely any alarm on our approach. If chased off for an instant, they returned the next, and their monotonous and gluttonous croak was heard around us at all hours of the day. The dryness of the season, and the scarcity of insects and small birds, urged them no doubt to this unusual familiarity with their doubtful friend

and frequent enemy, man. By the borders of streams in the central table-land of the Rocky Mountains, in several places we saw the old nests of the Magpie, made usually in low but thick bushes in the usual manner, barricaded over and floored with interlaced twigs. We scarcely ever saw them at all in the heavy forests of the Lower Columbia, any more than the Platte and Missouri, in all which places they are merely accidental visiters. They are not uncommon, however, in the vicinity of Monterey in Upper California. Their common call is *pay pay*, and the usual low social chatter when approaching their companions. I one day observed a small flock, and among the fraternity heard one chattering familiarly in the varied tune of the Cat-bird, as he sat on a bough by the water, where birds might become his prey. At another time I observed a flock of young Magpies boldly persecuting other birds, and chasing even Pigeon Hawks."

The following characteristic account of the habits of the Magpie as observed in Scotland, I have extracted from my friend MACGILLIVRAY'S "History of British Birds." "It is generally distributed in Britain, being more or less common in all the cultivated and wooded districts of England and Scotland, both in the interior and along the coast, although nowhere numerous, on account of the hostility of gamekeepers, gardeners, and sportsmen of all degrees. There, on the old ash that overshadows the farm-yard, you may see a pair, one perched on the topmost twig, the other hopping among the branches, uttering an incessant clatter of short hard notes, scarcely resembling any thing else in nature, but withal not unpleasant, at least to the lover of birds. How gracefully she of the top twig swings in the breeze! Off she starts, and directing her flight towards the fir wood opposite, proceeds with a steady, moderately rapid, but rather heavy flight, performed by quick beats of her apparently short wings, intermitted for a moment at intervals. Chattering by the way, she seems to call her mate after her; but he, intent on something which he has spied, hops downwards from twig to branch, and descends to the ground. Raising his body as high as possible, and carrying his tail inclined upwards, to avoid contact with the moist grass, he walks a few paces, and spying an earthworm half protruded from its hole, drags it out by a sudden jerk, breaks it in pieces, and swallows it. Now, under the hedge he has found a snail, which he will presently detach from its shell. But something among the bushes has startled him, and lightly he springs upwards, chattering the while, to regain his favourite tree. It is a cat, which, not less frightened than himself, runs off toward the house. The Magpie again descends, steps slowly over the green, looking from side to side, stops and listens, advances rapidly by a succession of leaps, and encounters a whole brood of chickens, with their mother at their heels. Were they unprotected, how deliciously would the Magpie feast, but alas

it is vain to think of it, for with fury in her eye, bristled plumage, and loud clamour, headlong rushes the hen, overturning two of her younglings, when the enemy suddenly wheels round, avoiding the encounter, and flies off after his mate.

There again, you perceive them in the meadow, as they walk about, with elevated tails, looking for something eatable, although apparently with little success. By the hedge afar off are two boys with a gun, endeavouring to creep up to a flock of Plovers on the other side. But the Magpies have observed them, and presently rising fly directly over the field, chattering vehemently, on which the whole flock takes to wing, and the disappointed sportsmen sheer off in another direction.

The food of the Magpie consists of testaceous mollusca, slugs, larvæ, worms, young birds, eggs, small quadrupeds, carrion, sometimes grain and fruits of different kinds, in search of which it frequents the fields, hedges, thickets, and orchards, occasionally visits the farm-yard, prowls among the stacks, perches on the house-top, whence it sallies at times, and examines the dunghill and places around. Although it searches for larvæ and worms in the ploughed fields, it never ventures, like the Rook, and several species of Gull, to follow the plough as it turns over each successive furrow. It has been accused of picking the eyes of lambs and sickly sheep, I think with injustice; but it sometimes carries off a chicken or duckling, and sucks an egg that may have been dropt abroad.

It is extremely shy and vigilant in the vicinity of towns, where it is much molested, but less so in country places, although even there it is readily alarmed. When one pursues it openly, it flits along the walls and hedges, shifts from tree to tree, and at length flies off to a distance. Yet it requires all its vigilance to preserve its life; for as it destroys the eggs and young of game birds, it is keenly pursued by keepers and sportsmen, so that one might marvel to find it maintaining its ground as a species, and yet it is not apparently diminishing in most parts of the country.

On the ground it generally walks in the same manner as the Crows, but occasionally leaps in a sidelong direction. The sounds which it emits are a sort of chuckling cry or chatter, which it utters when alarmed, as well as when it wishes to apprise other birds of danger. On the appearance of a fox, a cat, or other unfriendly animal, it never ceases hovering about it, and alarming the neighbourhood by its cries, until the enemy has slunk away out of sight.

It generally keeps in pairs all the year round, accompanies its young for some weeks after they first come abroad, and after the breeding season retires at night to the copses or woods, where sometimes a considerable number meet together. It begins to construct its nest early in March,

selecting as its site the top of some tall tree, a poplar, an ash, an elm, or sometimes a willow, or a beech; or, in defect of such, in a favourite locality, placing it in a thick bush of hawthorn, holly, or other low tree, or even in a hedge. It is a large, and therefore generally very conspicuous fabric, of a spheroidal or elliptical form, composed first of a layer of twigs, on which is laid a quantity of mud; then a dome of twigs, frequently hawthorn or sloe, but as often of any other kind, loosely but securely interlaced; while the bottom of the interior is lined with fibrous roots; and there is left in the side an aperture not much larger than is barely sufficient to admit the bird. The eggs are from three to six, and differ considerably in form and colouring. In general, they are regularly ovate, or a little pointed, about an inch and five-twelfths long, eleven and a half twelfths or an inch across; but sometimes more elongated by one-twelfth of an inch, or abbreviated by nearly the same quantity. Frequently they are pale green, freckled all over with umber-brown and light purple, and sometimes pale blue or bluish-white, or greenish-white, with smaller spots and dots of the same dark colours, so as very nearly to resemble the eggs of the Jay, which however are smaller."

CORVUS PICA, Linn. Syst. Nat., vol. i. p. 157
MAGPIE, *Corvus Pica*, Wils. Amer. Orn.
CORVUS PICA, Bonap. Syn., p. 57.
MAGPIE, Nutt. Man., vol. i. p. 219.
COMMON MAGPIE, *Corvus Pica*, Aud. Orn. Biog., vol. iv. p. 408.

Bill black; head, neck, fore part of breast and back black, glossed with green and blue; middle of the back greyish-white; scapulars white; smaller wing-coverts black, secondary coverts, alula and primary coverts splendent with green and blue; primaries black, glossed with green, the inner webs white, except at the end, and for some way along their margin; secondaries bright blue, changing to green, their inner webs greenish-black; tail splendent with bright green, changing to greenish-yellow, purplish-red, bluish-purple, and dark green at the end; breast and sides pure white; legs, abdomen, lower tail-coverts, and lower wing-coverts, black.

Male, 18½, 22½.

Interior of Texas, West Louisiana, Arkansas, Missouri, Rocky Mountains, and Saskatchewan. Common. Resident.

YELLOW-BILLED MAGPIE.

PICA NUTTALLII, *Aud.*

PLATE CCXXVIII.—ADULT.

I have conferred on this beautiful bird the name of a most zealous, learned, and enterprising naturalist, my friend THOMAS NUTTALL, Esq., to whom the scientific world is deeply indebted for the many additions to our zoological and botanical knowledge which have resulted from his labours. It is to him alone that we owe all that is known respecting the present species, which has not hitherto been portrayed. In a note inserted by him in my journal, he says:

"As we proceed to the south in Upper California, around the village of Sta. Barbara, we find the Common Magpie substituted by this remarkable species, which is much more shy and cautious, as well as more strictly insectivorous. It utters, however, nearly if not quite the same chatter. In the month of April they were everywhere mated, and had nearly completed their nests in the evergreen oaks of the vicinity (*Quercus agrifolia*). The only one I saw was situated on a rather high tree, towards the summit, and much concealed among the thick and dark branches. Their call was *pait, pait;* and on approaching each other, a low congratulatory chatter was heard. After being fired at once, it seemed nearly impossible again to approach them within gun-shot. When alighted in the thick oaks, they remained for a considerable time silent, and occasionally even wholly hid themselves; but after a while the call of recognition was again renewed, and if the pair then met, they would often fly off a mile or more, without stopping, in quest of insects. We often saw them on the ground, but never near the offal of the oxen so attractive to the Crows and Ravens around."

CORVUS NUTTALL, *Yellow-billed Magpie*, Aud. Orn. Biog., vol. iv. p. 450.

Bill and bare space beneath the eyes yellow; in form, proportion, and size, similar to the Common Magpie: the feathers of the tail narrower; the colours similar, but the top of the head glossed with green, and the black of the back and fore neck tinged with brown.

Male, 18.; wing, 7¾.

Upper California. Common. Resident.

Yellow-billed Magpie

Male

Plantanus

Drawn from Nature by J.J. Audubon FRSELS

Lith.d Printed & Col.d by J. T. Bowen, Philad.a

Columbia Magpie or Jay.

Males.

Drawn from Nature by J.J. Audubon, F.R.S. F.L.S.

Lith.d Printed & Col.d by J. T. Bowen Philad.a

COLUMBIA MAGPIE, OR JAY.

PICA BULLOCKII, *Wagler.*

PLATE CCXXIX.—ADULT MALES.

Were I to relate to you, good reader, the various accounts which I have heard respecting this splendid bird, I should have enough to say; but as I have resolved to confine myself entirely to the results of my own observation, I must for the present remain silent on the subject.

The specimen from which the drawings were taken was presented to me by a friend who had received it from the Columbia river. I adjoin a notice respecting it, with which I have been favoured by my friend the Prince of MUSIGNANO. "Le superbe geai, dont vous me parlez, est sans doute l'oiseau que WAGLER a fait connaître le premier, sous le nom de *Pica Bullockii*, et que TEMMINCK a figuré dans ses planches coloriées, sous celui de *Garrula Gubernatrix*. Son nom legitime, suivant mes principes, sera *Garrulus Bullockii*, mais vous avez raison de dire qu'il ne se trouve pas dans mon Synopsis: ce n'est que par votre lettre que j'ai appris qu'il se trouvait dans le territoire des Etats-Unis. Jusqu'à présent on ne l'avait trouvé qu'au Mexique et à la Californie. Il n'est pas étonnant qu'il se retrouve sur la rivière Columbia. Mais comment l'avez-vous obtenu, et avez-vous pu le dessiner vivant? Trois autres espèces de geais, qui ne sont pas dans mon Synopsis, habitent l'extremité nord de l'Amerique, et il est probable, qu'outre votre superbe *geai commandeur*, plusieurs autres des espèces Mexicaines se retrouvent dans sa partie occidentale."

COLUMBIA JAY, *Garrulus Bullockii*, Nutt. Man., vol. i. p. 220.
COLUMBIA JAY, *Corvus Bullockii*, Aud. Orn. Biog., vol. i. p. 483.

Male, 31, 26.

Woody portions of North California.

Bill of ordinary length, straight, robust, compressed; upper mandible with the dorsal outline straightish at the base, declinate and convex towards the tip, which is deflected, the sides convex, the edges rather sharp; lower mandible with the dorsal outline slightly concave towards the base, convex and ascending towards the tip. Nostrils basal, oval, partly concealed by short bristly feathers. Proportions of parts ordinary. Feet of ordinary

length, rather strong; tarsus compressed, about the length of the middle toe, anteriorly scutellate, covered behind with two longitudinal plates, meeting at an acute angle; toes free, scutellate above; claws of ordinary size, arched, convex above, canaliculate beneath.

Plumage compact, glossy. Feathers of the head elongated into a crest, the posterior ones recurvate. Wings longish, the third and fourth quills longest, the first short. Tail very long, graduated, of twelve feathers, of which the two central are slightly curved, and greatly exceed the rest in length.

Bill and feet brownish-black. Iris hazel. The general colour of the plumage is bright blue, with purple reflections. The fore neck and anterior part of the breast black; the rest of the under parts white. The inner webs of the quills dusky, the four outer feathers of the tail white towards the tip.

Length 31 inches, extent of wings 26; bill along the ridge 1¼, tarsus 2, middle toe 2.

Genus III.—GARRULUS. *Briss.* JAY.

Bill of moderate length, strong, straight, compressed, rather pointed; upper mandible with the dorsal line slightly arched, the ridge scarcely distinct, the sides sloping, the edges nearly straight, sharp, and overlapping, the notches slight, the tip slightly depressed; lower mandible with the angle of moderate length, rather wide, the dorsal line ascending, slightly convex, the sides sloping outwards, the edges direct, the tip acute. Nostrils basal, elliptical, covered by reversed stiffish feathers. Head rather large; neck short; body stout. Feet of moderate length, rather stout; tarsus of ordinary length, compressed, with eight scutella; toes moderate, the first large, the outer considerably longer than the inner; claws well-arched, rather long, compressed, acute. Plumage blended; small bristles at the base of the upper mandible; feathers of the head generally elongated; wings rather short, first quill very short, fourth and fifth longest; tail rather long, much rounded. Roof of upper mandible concave, with three ridges; digestive organs as in Corvus.

Stellers Jay.

Male

Drawn from Nature by J.J.Audubon.F.R.S.F.L.S. Lith.d Printed & Col.d by J. T. Bowen. Phila.a

STELLER'S JAY

GARRULUS STELLERI, *Gmel.*

PLATE CCXXX.—ADULT.

Of this Jay, discovered by STELLER, whose name it bears, Dr. RICHARDSON states that it "is not uncommon in the summer time on the Pacific coast of America, from the mouth of the Columbia to the 56th parallel. It also frequents the Rocky Mountains, where Mr. DRUMMOND procured a specimen. In its manner it greatly resembles the *Garrulus cristatus*." Mr. NUTTALL'S account of it is as follows:

"We first observed this bird in our western route in the Blue Mountains of the Columbia, east of Wallah Wallah. Here they were scarce and shy, but we met them in sufficient abundance in the majestic pine forests of the Columbia, where, in autumn, their loud and trumpeting clangour was heard at all hours of the day, calling out *djay, djay*, and sometimes chattering and uttering a variety of other notes scarcely recognisable as distinct from the calls of our common Blue Jay. They are, however, far more bold, irritable, and familiar. Watchful as dogs, a stranger no sooner shews himself in their vicinity than they neglect all other employment to come round, follow, peep at and scold him, sometimes with such pertinacity and irritability as to provoke the sportsman intent on other game to level his gun against them in mere retaliation. At other times, stimulated by mere curiosity, they will be observed to follow you in perfect silence, until something arouses their ready ire, when the *djay, djay, pay, pay*, is poured upon you without intermission, till you are beyond their view. So intent are they on vociferating, that it is not uncommon to hear them busily scolding even while engaged with a large acorn in the mouth. Of their geographical limits we are as yet uncertain. They were first found by STELLER at Nootka; but they do not extend into upper California, and scarcely to the west as far as the most western of the true Rocky Mountain Chains. They feed on insects, acorns, and the seeds of the gigantic pines which form a belt along the Pacific and the rivers of the Oregon Territory. In the month of May, I found a nest of this species in a small sapling of Douglas's Fir, on the borders of a dark and dense forest, and again some time after a second nest with young, in an elevated branch of the same pine, on the border of a rocky cliff. On approaching the nest, which contained four eggs, of a pale green

colour, with small olive-brown specks, varied with others of rather a violet hue, both the male and female flew at me with the utmost anger and agitation, deafening me almost with their cries and entreaties. But though I took only two of their eggs, I found next day that they had forsaken the nest, being too fearful and jealous of the intrusion to remain any longer in the same place. The nest as usual was bulky, made of interlaced twigs, and roots, with a stout layer of mud, and lined with black root-fibres. I saw the nest about ten days previous to the time of taking two of the four eggs. On that occasion the female (probably) only followed me in silence."

CORVUS STELLERI, Gmel. Linn. Syst. Nat., vol. i. p. 370.
CORVUS STELLERI, Bonap. Syn., p. 433.
STELLER'S JAY, *Corvus Stelleri*, Bonap. Amer. Orn., vol. ii. p. 44.
GARRULUS STELLERI, *Steller's Jay*, Swains. and Rich. F. Bor. Amer., vol. ii. p. 294.
STELLER'S JAY, Nutt. Man., vol. ii. p. 229.
STELLER'S JAY, *Corvus Stelleri*, Aud. Orn. Biog., vol. iv. p. 453.

Male, 13, wing, 5$\frac{11}{12}$.

Rocky Mountains, Columbia river, and North-west coast. Common. Migratory.

Adult Male.

Bill shorter than the head, strong, straight, a little compressed; upper mandible with the dorsal line declinate and convex toward the end, the sides sloping and becoming more convex toward the tip, which is declinate, thin edged and obtuse, the edges sharp and overlapping, with a slight notch; lower mandible straight, the angle short and broad, the dorsal outline ascending and slightly convex, the sides convex, the edges sharp and directed outwards, the tip narrow. Nostrils basal, roundish, covered by reversed bristly feathers.

Head large, ovate, eyes of moderate size; neck rather short; body compact. Legs of moderate length, strong; tarsus much compressed, with seven large anterior scutella, and two long plates behind, meeting so as to form a sharp edge. Toes stout, with large scutella, the outer adherent as far as its second joint to the middle toe; first very strong; lateral toes nearly equal, third much longer. Claws strong, arched, compressed, sharp.

Plumage full, soft, blended; stiff bristly feathers with disunited barbs over the nostrils, some of them extending a third of the length of the bill; at the base of the upper mandible several longish slender bristles. The feathers on the top of the head and occiput linear-oblong, slightly recurved, and forming an erectile crest an inch and a half in length. Wings of moderate length, convex, and much rounded; the first quill very short, the second an inch and a quarter longer, the third nine-twelfths longer than the second,

and three-twelfths shorter than the fourth, which is one-twelfth shorter than the fifth, the latter being the longest, although scarcely exceeding the sixth. Tail long, rounded, of twelve rather broad, rounded, and acuminate feathers, of which the shafts are undulated.

Bill and feet black. Iris hazel. Head and neck, with the fore part and middle of the back brownish-black, of a lighter tint on the back, and on the throat streaked with dull grey; the feathers on the forehead tipped with bright blue; the hind part of the back, the rump, and the upper tail-coverts light blue; as are the lower tail-coverts, the sides and lower parts of the rump, the sides of the body, and the whole of the breast; the middle of the abdomen paler, the tibial feathers, and the lower wing-coverts dusky, tinged with blue. Wings blue, the secondary coverts and quills rich indigo and ultra-marine, narrowly barred with black, the outer coverts of the primaries pale; the inner webs of the primaries and outer secondaries dusky; tail blue, with numerous narrow, inconspicuous dusky bars; the lower surface of the wings and tail dusky.

Length to end of tail 13 inches; bill along the ridge, $1\frac{1}{12}$, along the edge of lower mandible $1\frac{4}{12}$; wing from flexure $5\frac{1}{12}$; tail 6; tarsus $1\frac{8}{12}$; hind toe $\frac{7}{12}$, its claw $\frac{7}{12}$; middle toe $\frac{11}{12}$, its claw $\frac{5}{12}$.

The female is similar to the male, and scarcely inferior in colouring, but somewhat smaller.

Length to end of tail 12 inches; bill along the ridge $1\frac{1}{2}$; wing from flexure $5\frac{1}{2}$; tail $5\frac{1}{2}$; tarsus $1\frac{5}{12}$; middle toe $\frac{11}{12}$, its claw $\frac{5}{12}$.

Mr. TOWNSEND informs me that it is called *Ass-ass* by the Chinooks, who regard it with a superstitious feeling, believing that should a person hear it enunciating certain notes, which resemble the syllables *jaa-jaa*, he will shortly die, whereas its other notes, *kuc, kuc, kuc, kuc*, rapidly repeated, portend good. He further states that it is gregarious, like the Blue Jay, and corroborates some of the particulars above given.

Two eggs presented to me by Mr. NUTTALL measure an inch and an eighth in length, and seven-eighths in breadth.

THE BLUE JAY.

GARRULUS CRISTATUS, *Linn.*

PLATE CCXXXI.—MALE AND FEMALES.

Reader, look at the plate in which are represented three individuals of this beautiful species,—rogues though they be, and thieves, as I would call them, were it fit for me to pass judgment on their actions. See how each is enjoying the fruits of his knavery, sucking the egg which he has pilfered from the nest of some innocent Dove or harmless Partridge! Who could imagine that a form so graceful, arrayed by nature in a garb so resplendent, should harbour so much mischief;—that selfishness, duplicity, and malice should form the moral accompaniments of so much physical perfection! Yet so it is, and how like beings of a much higher order, are these gay deceivers! Aye, I could write you a whole chapter on this subject, were not my task of a different nature.

The Blue Jay is one of those birds that are found capable of subsisting in cold as well as in warm climates. It occurs as far north as the Canadas, where it makes occasional attacks upon the corn cribs of the farmers, and it is found in the most southern portions of the United States, where it abounds during the winter. Everywhere it manifests the same mischievous disposition. It imitates the cry of the Sparrow Hawk so perfectly, that the little birds in the neighbourhood hurry into the thick coverts, to avoid what they believe to be the attack of that marauder. It robs every nest it can find, sucks the eggs like the Crow, or tears to pieces and devours the young birds. A friend once wounded a Grouse (*Tetrao umbellus*), and marked the direction which it followed, but had not proceeded two hundred yards in pursuit, when he heard something fluttering in the bushes, and found his bird belaboured by two Blue-Jays, who were picking out its eyes. The same person once put a Flying Squirrel into the cage of one of these birds, merely to preserve it for one night; but on looking into the cage about eleven o'clock next day, he found the animal partly eaten. A Blue Jay at Charleston destroyed all the birds of an aviary. One after another had been killed, and the rats were supposed to have been the culprits, but no crevice could be seen large enough to admit one. Then the mice were accused, and war was waged against them, but still the birds continued to be killed; first the smaller, then the larger, until at length the Keywest Pigeons; when it was

Blue Jay.

1 Male. 2 & 3 Female.

Trumpet-flower Bignonia radicans.

Drawn from Nature by J.J.Audubon, FRSFLS. Lith.d Printed & Col.d by J. T. Bowen, Philad.a

discovered that a Jay which had been raised in the aviary was the depredator. He was taken out and placed in a cage, with a quantity of corn, flour, and several small birds which he had just killed. The birds he soon devoured, but the flour he would not condescend to eat, and refusing every other kind of food soon died. In the north, it is fond of ripe chestnuts, and in visiting the trees is sure to select the choicest. When these fail, it attacks the beech nuts, acorns, pears, apples, and green corn.

While at Louisville, in Kentucky, in the winter of 1830, I purchased twenty-five of these birds, at the rate of 6¼ cents each, which I shipped to New Orleans, and afterwards to Liverpool, with the view of turning them out into the English woods. They were caught in common traps, baited with maize, and were brought to me one after another as soon as secured. In placing them in the large cage which I had ordered for the purpose of sending them abroad, I was surprised to see how cowardly each newly caught bird was when introduced to his brethren, who, on being in the cage a day or two, were as gay and frolicsome as if at liberty in the woods. The new comer, on the contrary, would run into a corner, place his head almost in a perpendicular position, and remain silent and sulky, with an appearance of stupidity quite foreign to his nature. He would suffer all the rest to walk over him and trample him down, without ever changing his position. If corn or fruit was presented to him, or even placed close to his bill, he would not so much as look at it. If touched with the hand, he would cower, lie down on his side, and remain motionless. The next day, however, things were altered, he was again a Jay; taking up corn, placing it between his feet, hammering it with his bill, splitting the grain, picking out the kernel, and dropping the divided husks. When the cage was filled, it was amusing to listen to their hammering; all mounted on their perch side by side, each pecking at a grain of maize, like so many blacksmiths paid by the piece. They drank a great deal, eat broken pecan nuts, grapes, dried fruits of all sorts, and especially fresh beef, of which they were extremely fond, roosted very peaceably close together, and were very pleasing pets. Now and then one would utter a cry of alarm, when instantly all would leap and fly about as if greatly concerned, making as much ado as if their most inveterate enemy had been in the midst of them. They bore the passage to Europe pretty well, and most of them reached Liverpool in good health, but a few days after their arrival, a disease occasioned by insects adhering to every part of their body, made such progress that some died every day. Many remedies were tried in vain, and only one individual reached London. The insects had so multiplied on it, that I immersed it in an infusion of tobacco, which, however, killed it in a few hours.

On advancing north, I observed that as soon as the Canada Jay made its

appearance, the Blue Jay became more and more rare; not an individual did any of our party observe in Newfoundland or Labrador, during our stay there. On landing a few miles from Pictou, on the 22nd of August, 1833, after an absence of several months from the United States, the voice of a Blue Jay sounded melodious to me, and the sight of a Humming-bird quite filled my heart with delight.

These Jays are plentiful in all parts of the United States. In Louisiana they are so abundant as to prove a nuisance to the farmers, picking the newly planted corn, the peas, and the sweet potatoes, attacking every fruit tree, and even destroying the eggs of pigeons and domestic fowls. The planters are in the habit of occasionally soaking some corn in a solution of arsenic, and scattering the seeds over the ground, in consequence of which many Jays are found dead about the fields and gardens.

The Blue Jay is extremely expert in discovering a fox, a racoon, or any other quadruped hostile to birds, and will follow it, emitting a loud noise, as if desirous of bringing every Jay or Crow to its assistance. It acts in the same manner towards Owls, and even on some occasions towards Hawks.

This species breeds in all parts of the United States, from Louisiana to Maine, and from the Upper Missouri to the coast of the Atlantic. In South Carolina it seems to prefer for this purpose the live oak trees. In the lower parts of the Floridas it gives place in a great measure to the Florida Jay; nor did I meet with a single individual in the Keys of that peninsula. In Louisiana it breeds near the planter's house, in the upper parts of the trees growing in the avenues, or even in the yards, and generally at a greater height than in the Middle States, where it is comparatively shy. It sometimes takes possession of the old or abandoned nest of a Crow or Cuckoo. In the Southern States, from Louisiana to Maryland, it breeds twice every year; but to the eastward of the latter State seldom more than once. Although it occurs in all places from the sea-shore to the mountainous districts, it seems more abundant in the latter. The nest is composed of twigs and other coarse materials, lined with fibrous roots. The eggs are four or five, of a dull olive colour, spotted with brown.

The Blue Jay is truly omnivorous, feeding indiscriminately on all sorts of flesh, seeds, and insects. He is more tyrannical than brave, and, like most boasters, domineers over the feeble, dreads the strong, and flies even from his equals. In many cases, in fact, he is a downright coward. The Cardinal Grosbeak will challenge him, and beat him off the ground. The Red Thrush, the Mocking-bird, and many others, although inferior in strength, never allow him to approach their nest with impunity; and the Jay, to be even with them, creeps silently to it in their absence, and devours their eggs and young whenever he finds an opportunity. I have seen one go its round from

one nest to another every day, and suck the newly laid eggs of the different birds in the neighbourhood, with as much regularity and composure as a physician would call on his patients. I have also witnessed the sad disappointment it experienced, when, on returning to its own home, it found its mate in the jaws of a snake, the nest upset, and the eggs all gone. I have thought more than once on such occasions that, like all great culprits, when brought to a sense of their enormities, it evinced a strong feeling of remorse. While at Charleston, in November 1833, Dr. WILSON of that city told me that on opening a division of his aviary, a Mocking-bird that he had kept for three years, flew at another and killed it, after which it destroyed several Blue Jays, which he had been keeping for me some months in an adjoining compartment.

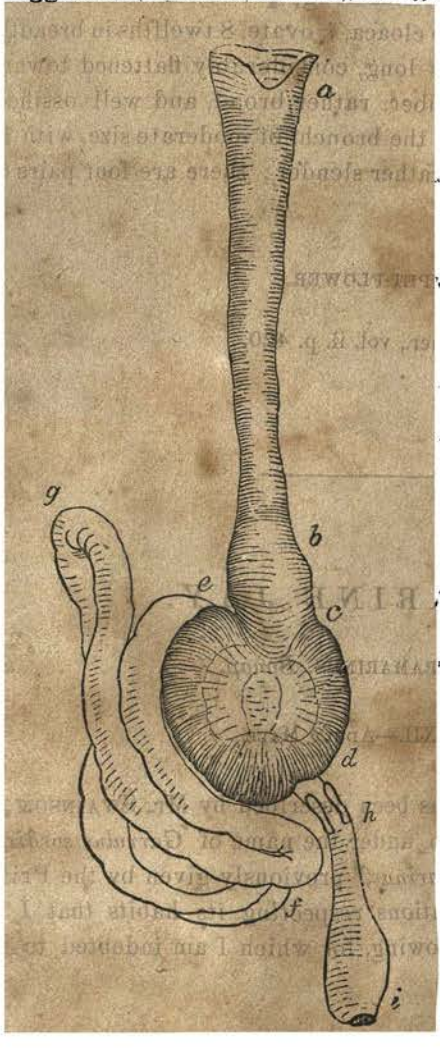
The Blue Jay seeks for its food with great diligence at all times, but more especially during the period of its migration. At such a time, wherever there are chinquapins, wild chestnuts, acorns, or grapes, flocks will be seen to alight on the topmost branches of these trees, disperse, and engage with great vigour in detaching the fruit. Those that fall are picked up from the ground, and carried into a chink in the bark, the splinters of a fence rail, or firmly held under foot on a branch, and hammered with the bill until the kernel be procured.

As if for the purpose of gleaning the country in this manner, the Blue Jay migrates from one part to another during the day only. A person travelling or hunting by night, may now and then disturb the repose of a Jay, which in its terror sounds an alarm that is instantly responded to by all its surrounding travelling companions, and their multiplied cries make the woods resound far and near. While migrating, they seldom fly to any great distance at a time without alighting, for like true rangers they ransack and minutely inspect every portion of the woods, the fields, the orchards, and even the gardens of the farmers and planters. Always exceedingly garrulous, they may easily be followed to any distance, and the more they are chased the more noisy do they become, unless a Hawk happen to pass suddenly near them, when they are instantly struck dumb, and, as if ever conscious of deserving punishment, either remain motionless for awhile, or sneak off silently into the closest thickets, where they remain concealed as long as their dangerous enemy is near.

During the winter months they collect in large numbers about the plantations of the Southern States, approach the houses and barns, attend the feeding of the poultry, as well as of the cattle and horses in their separate pens, in company with the Cardinal Grosbeak, the Towhe Bunting, the Cow Bunting, the Starlings and Grakles, pick up every grain of loose corn they can find, search amid the droppings of horses along the roads, and enter the

corn cribs, where many are caught by the cat and the sons of the farmer. Their movements on the wing are exceedingly graceful, and as they pass from one tree to another, their expanded wings and tail, exhibiting all the beauty of their graceful form and lovely tints, never fail to delight the observer.

Although this species proceeds up the Missouri river to the eastern declivities of the Rocky Mountains, it is not found on the Columbia. Dr. RICHARDSON says that it "visits the Fur Countries, in summer, up to the 56th parallel, but seldom approaches the shores of Hudson's Bay." He is, however, mistaken when he says that "it frequents the Southern States only in winter;" for it is found there at all seasons, and breeds in every district of them, as well as in the Texas, where I found it, although it was rare. The eggs measure an inch and half an eighth in length, and seven-eighths in breadth.



BLUE JAY, *Corvus cristatus*, Wils. Amer. Orn., vol. i. p. 2.
CORVUS CRISTATUS, Bonap. Syn., p. 58.
CARRULUS CRISTATUS, *Blue Jay*, Swains. and Rich. F. Bor. Amer., vol. ii. p. 293.
BLUE JAY. *Corvus cristatus*, Aud. Orn. Biog., vol. ii. p. 11; vol. v. p. 475.

Feathers of the head elongated, oblong; tail much rounded. Upper parts light purplish-blue; wings and tail ultramarine, secondaries, their coverts, and tail-feathers barred with black, and tipped with white; a narrow band margining the forehead, loral space, and a band round the neck, black; throat and cheeks bluish-white; lower parts greyish-white, tinged with brown.

Male, 12, 14.

Breeds from Texas eastward and northward to the Fur Countries, and as far as the bases of the Rocky Mountains. Abundant. Resident in the Middle, Interior, and Southern States.

The roof of the mouth is rather flat, anteriorly with three ridges; the lower mandible moderately con-

Ultramarine Jay.

Adult Male.

Drawn from Nature by J.J.Audubon.F.R.S.F.L.S. Lith.ª Printed & Col.ª by J.T.Bowen, Philad.ª

cave with a median ridge; posterior aperture of nares linear, 8 twelfths long, with the edges papillate; width of mouth 7½ twelfths. The tongue is 9½ twelfths long, emarginate and papillate at the base, flat above, horny toward the end, with the tip slit and lacerated. The œsophagus, *a b c*, 3¼ inches long, 6 twelfths wide at the commencement, but suddenly tapering to 3 twelfths. The lobes of the liver are very unequal, the right being 1 inch 2 twelfths in length, the other 9 twelfths. The stomach, *c d e*, is very large, of a broadly elliptical, compressed form, 1 inch in length, 10 twelfths in breadth; its lateral muscles of considerable thickness, the left being 4 twelfths; the tendons large; the epithelium very dense, tough, rugous, of a dark brown colour. It is filled with remains of insects and mineral substances. The intestine, *e f g h i*, is 16½ inches long, from 4 twelfths to 2½ twelfths in width; the cœca, *h*, 3 twelfths long, ½ twelfth wide, and 1¼ inches distant from the extremity; the cloaca, *i*, ovate, 8 twelfths in breadth.

The trachea is 2 inches 5 twelfths long, considerably flattened toward the lower part; its rings 56 in number, rather broad, and well ossified, with two additional dimidiate rings; the bronchi of moderate size, with 12 half rings. The lateral muscles are rather slender; there are four pairs of inferior laryngeal muscles.

THE TRUMPET-FLOWER.

BIGNONIA RADICANS. *Pursh.* Flor. Amer., vol. ii. p. 420.

ULTRAMARINE JAY.

GARRULUS ULTRAMARINUS, *Bonap.*

PLATE CCXXXII.—ADULT MALE.

Although the Ultramarine Jay has been described by Mr. SWAINSON, in his Synopsis of the Birds of Mexico, under the name of *Garrulus sordidus*, I retain the specific name "*ultramarinus*," previously given by the Prince of MUSIGNANO. The only observations respecting its habits that I am aware have been made, are the following, for which I am indebted to my friend THOMAS NUTTALL.

"Early in October, on arriving in the forests of the Columbia, near Fort Vancouver, an establishment of the Hudson's Bay Company, we saw in the same situations with the Steller's Jay, the present species. Its habits are much like those of the Common Jay. It usually flies out to the tops of the lofty pines, jerks its tail, and perches playfully on some extreme branch, where it utters at times, as if excited by petulant anger, a strong *whoit, woit, woit, woit*, after which expression it emits a sort of recognition-call at short intervals, *twee*, and sometimes a shorter *'twee 'twee*. When much pursued, it sits still in the concealing shade of the lofty branches on which it seeks refuge. It feeds on insects, acorns broken up, and probably pine seeds. They appear to associate in roving families throughout the fall and winter, like the other species, seldom if ever associating with the more Common Steller's Jay, though now and then perhaps in the same tree. It is a graceful, active, and rather shy species, flying out straight from tree to tree, remarkable by its long tail and rather short wings; and its note is much less harsh and loud than that of Steller's Jay. They breed in the dark pine woods, probably, where we so frequently saw them alight, and on the 15th of June they were feeding their fully fledged young, two of which I pursued for some time, but they skulked so effectually as to escape me after a long and doubtful chase. The young had a great predominance of grey on the back. The same species also extends into Upper California."

GARRULUS ULTRAMARINUS, Bonap. ULTRAMARINE JAY

ULTRAMARINE JAY, *Corvus ultramarinus*, Aud. Orn. Biog., Vol. iv. p. 456.

Bill shorter than the head, strong, straight, compressed toward the end; upper mandible with the dorsal line declinate and convex toward the end; the sides sloping and becoming convex toward the tip, which is declinate, thin-edged and obtuse, the edges sharp and overlapping, with a slight notch; lower mandible straight, the angle rather short and broad, the dorsal outline ascending and slightly convex, the sides convex, the edges sharp and directed outwards, the tip narrow. Nostrils basal, roundish, covered by the reversed bristly feathers.

Head large, ovate; eyes of moderate size; neck rather short; body compact. Legs of moderate length, strong; tarsus much compressed, with seven large anterior scutella, and two long plates behind, meeting so as to form a sharp edge. Toes stout, with large scutella, the outer adherent as far as its second joint to the middle toe; first very strong; inner toe shorter than outer, third much longer. Claws strong, arched, compressed, acute.

Plumage full, soft, blended. Stiff feathers with disunited barbs over the nostrils, the longest scarcely extending to a third of the length of the bill;

at the base of the upper mandible several longish slender bristles. Wings of moderate length, convex, and much rounded ; the first quill very short, an inch and two-twelfths shorter than the second, which is eight-twelfths shorter than the third, the fourth three-twelfths longer than the third, and a twelfth and a half shorter than the fifth, which is the longest, but scarcely exceeds the sixth. Tail long, much rounded, of twelve rather narrow, rounded and acuminate feathers, of which the lateral is an inch and a quarter shorter than the longest.

Bill and feet brownish-black. Iris hazel. Upper part of the head, sides and hind part of the neck, wings, upper tail-coverts, and tail, light blue; back light greyish-brown, the feathers of the rump whitish and tinged with blue at the end ; the inner webs of the quills dusky ; the tail transversely undulated, and having the appearance of being faintly barred with a darker tint. A white band over the eye formed by the tips of the feathers there; the cheeks dusky ; the fore neck greyish-white, faintly streaked with dusky; and bounded below by a narrow semilunar band of light blue continuous with that of the neck. The lower parts are pale purplish-grey, passing into white on the abdomen ; lower tail-coverts tinged with blue.

Length to end of tail 12 inches; bill along the ridge $1\frac{1}{12}$, along the edge of lower mandible $1\frac{4}{12}$; wing from flexure $5\frac{8}{12}$; tail $6\frac{1}{12}$; tarsus $1\frac{9}{12}$; hind toe $\frac{7}{12}$, its claw $\frac{7}{12}$; middle toe $1\frac{1}{12}$, its claw $\frac{6}{12}$.

The female is considerably smaller, but resembles the male in colour.

Length to end of tail $11\frac{1}{2}$ inches; wing from flexure $5\frac{3}{12}$; tail $6\frac{2}{12}$; tarsus $1\frac{7}{12}$; middle toe 1, its claw $\frac{6}{12}$.

The resemblance which this species bears to the Florida Jay is so close that one might readily confound the two. That species, however, is distinguishable by its smaller size and its more rounded tail; by its having a band of whitish across the forehead and extended over the eye, where it is not in dots as in the Ultramarine Jay.

THE FLORIDA JAY.

GARRULUS FLORIDANUS, *Bartram.*

PLATE CCXXXIII.—MALE AND FEMALE.

This beautiful and lively bird is a constant resident in the south-western parts of Florida, from which country it seldom if ever removes to any great distance. It is never seen in the State of Louisiana, far less in that of Kentucky, and when CHARLES BONAPARTE asserts that it occurs in these districts, we must believe that he has been misinformed. It is so confined to the particular portions of Florida which it inhabits, that even on the eastern shores of that peninsula few are to be seen. I have never observed it in any part of Georgia, or farther to the eastward.

The flight of the Florida Jay is generally performed at a short distance from the ground, and consists either of a single sailing sweep, as it shifts from one tree or bush to another, or of continuous flappings, with a slightly undulated motion, in the manner of the Magpie (*Pica melanoleuca*) or of the Canada Jay (*Garrulus canadensis*). Its notes are softer than those of its relative the Blue Jay (*Garrulus cristatus*), and are more frequently uttered. Its motions are also more abrupt and quicker. It is seen passing from one tree to another with expanded tail, stopping for a moment to peep at the intruder, and hopping off to another place the next minute. It frequently descends to the ground, along the edges of oozy or marshy places, to search for shells, of which, together with berries of various kinds, fruits and insects, its food consists. It is easily approached during the breeding season, but it is more shy at other times. It is a great destroyer of the eggs of small birds, as well as of young birds, which it chases and kills by repeated blows of its bill on their heads, after which it tears their flesh with avidity.

The Florida Jay is easily kept in a cage, where it will feed on recent or dried fruits, such as figs, raisins, and the kernels of various nuts, and exhibits as much gaiety as the Blue Jay does in a similar state. Like the latter, it secures its food between its feet, and breaks it into pieces before swallowing it, particularly the acorns of the *live oak*, and the snails which it picks up among the *sword palmetto*. No sooner have the seeds of that plant become black, or fully ripe, than the Florida Jay makes them almost its sole food for a time, and wherever a patch of these troublesome plants are to be seen, there

Florida Jay.

1. Male. 2. Female.

Persimon-tree Diospyros Virginiana.

Drawn from Nature by J.J. Audubon, F.R.S.F.L.S. Lith.d Printed & Col.d by J. T. Bowen, Philad.a

also is the Jay to be met with. I have called the *palmetto* a troublesome plant, because its long, narrow, and serrated leaves are so stiff, and grow so close together, that it is extremely difficult to walk among them, the more so that it usually grows in places where the foot is seldom put without immediately sinking in the mire to a depth of several inches.

The nest of the Florida Jay is sparingly formed of dry sticks, placed across each other, and, although of a rounded shape, is so light that the bird is easily seen through it. It is lined with fibrous roots, placed in a circular manner. The eggs are from four to six, of a light olive colour, marked with irregular blackish dashes. Only one brood is raised in the season.

I had a fine opportunity of observing a pair of these birds in confinement, in the city of New Orleans. They had been raised out of a family of five, taken from the nest, and when I saw them had been two years in confinement. They were in full plumage, and extremely beautiful. The male was often observed to pay very particular attentions to the female, at the approach of spring. They were fed upon rice, and all kinds of dried fruit. Their cage was usually opened after dinner, when both immediately flew upon the table, fed on the almonds which were given them, and drank claret diluted with water. Both affected to imitate particular sounds, but in a very imperfect manner. These attempts at mimicry probably resulted from their having been in company with parrots and other birds. They suffered greatly when moulting, becoming almost entirely bare, and required to be kept near the fire. The female dropped two eggs in the cage, but never attempted to make a nest, although the requisite materials were placed at her disposal.

I have represented a pair of Florida Jays on a branch of the *persimon tree*, ornamented with its richly coloured fruits. This tree grows to a moderate height as well as girth. The wood is hard and compact. The leaves drop off at an early period. The fruit, when fully ripe, is grateful to the palate. The *persimon* occurs in all parts of the United States, but abounds in the low lands of Florida and Louisiana, probably more than in any other portion of the Union.

CORVUS FLORIDANUS, Bonap. Syn., p. 58.
FLORIDA JAY, *Garrulus floridanus*, Bonap. Amer. Orn., vol. ii.
FLORIDA JAY, Nutt. Man., vol. i. p. 230.
FLORIDA JAY, *Cornus floridanus*. Aud. Orn. Biog., vol. i. p. 444.

Male, 11¼, 14.

Confined to the Floridas. Not very common. Resident.

Bill, short, strong, straight, compressed, acute; upper mandible with the dorsal outline nearly straight, the sides sloping, the edges sharp and overlapping, the tip slightly declinate; lower mandible with the back narrow, the

sides sloping. Nostrils basal, open, covered by the reversed bristly feathers. Head rather large, neck short, body robust. Feet of ordinary length; tarsus about the same length as the middle toe, anteriorly scutellate, compressed, acute behind; toes free, scutellate, the inner shorter than the outer; claws arched, compressed, acute.

Plumage soft, blended, glossy. A tuft of reflected bristly feathers over the nostril on each side, and several bristle-pointed feathers at the base of the upper mandible. Wings short, third and fourth quills longest, first short. Tail long, much rounded, of twelve rounded feathers.

Bill and feet brownish-black. Iris hazel. Upper part of the head, the cheeks, side, and back part of the neck, the wings and tail, of a bright purplish-azure. Back light yellowish-brown. A band of white on the forehead, extending over the eyes. The under parts brownish-white. The upper tail-coverts are blue, and the tail-feathers are indistinctly barred with deeper lines.

Length 11¼ inches; bill along the ridge 1½, along the gap nearly 1¾; tarsus 1$\frac{2}{12}$, middle toe nearly the same.

Adult Female.

The female presents the same colours as the male, the difference in tint being hardly perceptible.

The Persimon Tree.

Diospyros virginiana, *Willd.*, Sp. Pl., vol. iv. p. 1107. *Pursh*, Flor. Amer., vol. i. p. 265. *Mich.*, Arb. Forest. de l'Amer. Sept., vol. ii. p. 195, pl. 12.—Polygamia Dicœcia, *Linn.*—Guaiacanæ, *Juss.*

Leaves ovato-oblong, acuminate, smooth, venous; petioles downy; buds smooth. The flowers are pale yellow, and the fruits, which are of the size of a plum, are of a globular form, and when mature, of a dull yellowish colour. The bark of old trees is cracked, and of a dark colour. The wood is employed for various purposes, being fine-grained, hard and durable.

Canada Jay.

1. Male. 2. Female. 3 Young.

White Oak. Quercus alba.

Drawn from Nature by J.J.Audubon F.R.S.F.L.S.

Lith.ª Printed & Col.ª by J. T. Bowen Philad.ª

THE CANADA JAY.

GARRULUS CANADENSIS, *Linn.*

PLATE CCXXXIV.—MALE, FEMALE, AND YOUNG.

I have found this species of Jay breeding in the State of Maine, where many individuals belonging to it reside the whole year, and where in fact so many as fifteen or twenty may be seen in the course of a day by a diligent person anxious to procure them. In the winter, their numbers are constantly augmented by those which repair to that country from places farther north. They advance to the southward as far as the upper parts of the State of New York, where the person who first gave intimation to Mr. WILSON that the species was to be found in the Union, shot seven or eight one morning, from which number he presented one to the esteemed author of the "American Ornithology," who afterwards procured some in the same neighbourhood. This species is best known in Maine by the name of the "Carrion-bird," which is usually applied to it on account of its carnivorous propensities. When their appetite is satisfied, they become shy, and are in the habit of hiding themselves amongst close woods or thickets; but when hungry, they show no alarm at the approach of man, nay, become familiar, troublesome, and sometimes so very bold as to enter the camps of the "lumberers," or attend to rob them of the bait affixed to their traps. My generous friend, EDWARD HARRIS, Esq., of Moorestown, New Jersey, told me that while fishing in a birch canoe on the lakes in the interior of the State of Maine, in the latter part of the summer of 1833, the Jays were so fearless as to alight in one end of his bark, while he sat in the other, and help themselves to his bait, taking very little notice of him.

The lumberers or wood-cutters of this State frequently amuse themselves in their camp during their eating hours, with what they call "transporting the carrion bird." This is done by cutting a pole eight or ten feet in length, and balancing it on the sill of their hut, the end outside the entrance being baited with a piece of flesh of any kind. Immediately on seeing the tempting morsel, the Jays alight on it, and while they are busily engaged in devouring it, a wood-cutter gives a smart blow to the end of the pole within the hut, which seldom fails to drive the birds high in the air, and not unfrequently kills them. They even enter the camps, and would fain eat from the hands of the men while at their meals. They are easily caught in any

kind of trap. My friend, the Rev. JOHN BACHMAN, informed me that when residing in the State of New York, he found one caught in a snare which had been set with many others for the common Partridge or "Quail," one of which the Jay had commenced eating before he was himself caught.

In the winter they are troublesome to the hunters, especially when the ground is thickly covered with snow, and food consequently scarce, for, at such a time, they never meet with a Deer or a Moose hung on a tree, without mutilating it as much as in their power. In the Bay of Fundy I observed, several mornings in succession, a Canada Jay watching the departure of a Crow from her nest, after she had deposited an egg. When the Crow flew off, the cunning Jay immediately repaired to the nest, and carried away the egg. I have heard it said that the Canada Jay sometimes destroys the young of other birds of its species, for the purpose of feeding its own with them; but not having witnessed such an act, I cannot vouch for the truth of the report, which indeed appears to me too monstrous to be credited.

I have often been delighted by the sight of their graceful movements on alighting after removing from one tree to another, or while flying across a road or a piece of water. They have an odd way of nodding their head, and jerking their body and tail, while they emit their curiously diversified notes, which at times resemble a low sort of mewing, at others the sound given out by an anvil lightly struck with a hammer. They frequently alight about the middle of a tree, and hop with airy grace from one branch to another until they reach the very top, when they remove to another tree, and thus proceed through the woods. Their flight resembles that of the Blue Jay, although I do not consider it quite so firm or protracted.

The Canada Jay breeds in Maine, in New Brunswick, Nova Scotia, Newfoundland, and Labrador. It begins so early as February or March to form its nest, which is placed in the thickest part of a fir tree, near the trunk, and at a height of from five to ten feet. The exterior is composed of dry twigs, with moss and grass, and the interior, which is flat, is formed of fibrous roots. The eggs, which are from four to six, are of a light grey colour, faintly marked with brown. Only one brood is raised in the season. I found the young following their parents on the 27th of June, 1833, at Labrador, where I shot both old and young, while the former was in the act of feeding the latter.

The young, which was fully fledged, had no white about the head; the whole plumage was of a very deep slate colour, approaching to black, excepting the ends of the tail feathers, which were of a sullied white, the lower mandible almost white. The bill was (of course) shorter than that of the old bird, more dilated at the base, the bristles there proportionally shorter.

The legs were of a deep purplish-black. In short, it bore a perfect resemblance to the bird called the "Short-billed Jay, or Whisky-Jack, *Garrulus brachyrhynchus*," of my excellent friend Mr. SWAINSON, as described and figured by himself and Dr. RICHARDSON in their beautiful and valuable Fauna Boreali-Americana, (Vol. II. p. 296. Pl. 551.) So unlike the parent birds did the young of this species appear, that before I saw them fed by the old ones, I urged my young companions to shoot every one of the brood, thinking they might be of a new species. The contents of the stomach of both young and old birds were insects, *leaves of fir trees*, and eggs of ants. The intestines measured one foot eleven inches. The flesh of both was of a dark bluish colour, and smelt strongly of their food.

I was induced to give a figure of the young of the Canada Jay simply because, as above mentioned, my friend Mr. SWAINSON formed of it a new species, under the name of *Garrulus brachyrhynchus*. The account given of this alleged species, at page 296 of the second part of the Fauna Boreali-Americana, is as follows:—"The only specimen brought home of the Short-billed Jay was killed on the roof of the dwelling-house at Fort Franklin. Its general appearance and manners resemble those of the Canada Jay or Whisky-Jack so strongly, that we did not recognise it as a distinct species, and consequently did not ascertain whether it completely replaces the Canadian one in high latitudes, or whether both exist in the same localities." The description of the habits of the Canada Jay or "Whisky-Jack," in the same work, may here be referred to:—

"This inelegant but familiar Jay inhabits the woody districts from latitude 65° to Canada, and in the winter time makes its appearance in the northern section of the United States. Scarcely has the winter traveller in the Fur Countries chosen a suitable place of repose in the forest, cleared away the snow, lighted his fire, and prepared his bivouac, when the Whisky-Jack pays him a visit, and boldly descends into the circle to pick up any crumbs of frozen fish or morsels of pemmican that have escaped the mouths of the hungry and weary sledge-dogs. This confidence compensates for the want of many of those qualities which endear others of the feathered tribes to man. There is nothing pleasing in the voice, plumage, form, or attitudes of the Whisky-Jack; but it is the only inhabitant of those silent and pathless forests which, trusting in the generosity of man, fearlessly approaches him; and its visits were, therefore, always hailed by us with satisfaction. It is a constant attendant at the fur-posts and fishing-stations, and becomes so tame in winter as to eat from the hand; yet it is impatient of confinement, and soon pines away if deprived of liberty. It hops actively from branch to branch, but, when at rest, sits with its head retracted and the plumage of the body very loose. Its voice is plaintive and squeaking; though it occasion-

ally makes a low chattering, especially when agitated by the prospect of a supply of food. It hoards berries, pieces of meat, &c., in hollow trees, or between layers of the bark of decaying birches, by which it is enabled to pass the winter in comfort, and to rear its young before the snow is off the ground, and indeed earlier than any other in the Fur Countries. Its nest is concealed with such care, that none of the Indians with whom I spoke on the subject had seen it; but both HUTCHINS and HEARNE inform us, that 'it is generally built in a fir tree, of sticks and grass; the eggs are blue; and the young brood, which are quite black, take to flight by the middle of May.'

Now, to my eye, the Canada Jay is as elegant in its movements, whether perched or on wing, as any other of our Jays, although its apparel is certainly very homely. It is joyous and lively at all times, even when, pushed by extreme hunger, it approaches the lonely camp of the traveller, with the hope of obtaining a share, however small, of his perhaps scanty fare.

Its range is very extensive, as I have specimens procured by Mr. TOWNSEND on the Columbia river, and it has been observed by Dr. RICHARDSON as far northward as lat. 65°. The former of these naturalists states that he found "these birds at the site of Old Fort Astoria, on the Columbia river. They were very noisy and active; the voice is strong and harsh. The Indians however say, that they are rarely seen, and that they do not breed hereabouts." Mr. TITIAN PEALE has obtained it in the neighbourhood of Philadelphia, and I have the body of one procured there by himself in October, 1836.

The description given in the Fauna Boreali-Americana of the individual there represented, agrees in all respects with that of the bird now before you, which *I saw fed several times by its parent the Canada Jay.* The differences pointed out as specifically distinctive are merely such as are presented by young and old birds of many species.

CANADA JAY, *Corvus canadensis*, Wils. Amer. Orn., vol. iii. p. 33.
CORVUS CANADENSIS, Bonap. Syn., p. 58.
GARRULUS CANADENSIS, *Whisky-Jack*, Swains. and Rich. F. Bor. Amer., vol. ii. p. 295.
GARRULUS BRACHYRHYNCHUS, *Short-billed Jay*, Swains. and Rich. F. Bor. Amer., vol. ii. p. 296. Young.
GARRULUS CANADENSIS, *Canada Jay*, Nutt. Man., vol. i. p. 232.
SHORT-BILLED JAY, Nutt. Man., vol. ii. p. 599.
CANADA JAY, *Corvus canadensis*, Aud. Orn. Biog., vol. ii. p. 53; vol. v. p. 208.

Upper parts dull leaden-grey; lower dull yellowish white; forehead yellowish-white; hind part of the head and neck greyish-black; throat and band passing round the neck, greyish-white; secondary quills and tail-feathers

narrowly tipped with white. Young very dull slate-colour, paler on the abdomen, on the head blackish, wings and tail as in the adult, their tips of a duller white.

Male, 11, 15.

Rare, and only in winter, from Pennsylvania to New York. More abundant in Massachusetts. Common from Maine northward to the Fur Countries. Columbia river.

The description of two young birds, one procured in Labrador, the other in Nova Scotia, is, as to form and plumage, the same as that of the adult, the latter, however, being as follows: The bill, instead of being compressed, is broader than high at the base, and moderately compressed only toward the end; the fifth quill is longest, the sixth and fourth nearly equal; and the plumage is remarkably soft, full, and loose, as in many Titmice.

In the young the plumage is still looser, the filaments being distinct, but the feathers are shorter than in the adult. The wings and tail are similar. The bill is dusky, with the edges of both mandibles yellow; the feet as in the adult. The general tint is very deep dull slate-colour, paler on the abdomen; the feathers at the base of the bill and the ear-coverts greyish-black; inner webs of the quills brownish-black; edges of the outer primaries yellowish-grey, of the rest bluish-grey; tips of all the quills, the three outer excepted, greyish-white; tail approaching to dull leaden-grey, broadly tipped with dull yellowish white. Another young bird is similar, but with the bill darker, and a band of dull white from the base of the lower mandible to the ears, as in the individual represented in the plate.

The specimen presented by Mr. PEALE, and preserved in spirits, presents the following characters. The tongue is triangular, flattened above, tapering to a blunt emarginate point, and having a single prominent papilla at the base on each side. The œsophagus is 3¼ inches long, tapering, its diameter anteriorly ½ inch, below ¼. Proventriculus 4½ twelfths in breadth. The stomach is broadly elliptical, compressed, 11 twelfths long, 9 twelfths broad; its muscular coat 2 twelfths in thickness, not divided into distinct lateral and inferior muscles; the tendons elliptical, their greatest diameter 4 twelfths; the epithelium thin, tough, brownish-red, longitudinally marked with broad rugæ. The contents of the stomach are numerous remains of insects, a large hairy caterpillar, 2 inches long, and two persimon seeds. The intestine is 17½ inches long.

The trachea is 2 inches 5 twelfths long, flattened, tapering from 2 twelfths in breadth to 1 twelfth, of about 50 well ossified rings. The inferior laryngeal muscles are large, and four in number on each side, exclusive of the sterno-tracheal. The bronchi are wide, of about 12 cartilaginous half rings.

QUERCUS ALBA, *Willd.*, Sp. Pl., vol. iv. p. 429. *Michaux*, Arbr. Forest. de l'Amerique Sept., vol. ii. p. 13, pl. 1. *Pursh*, Flor. Amer. Sept., vol. ii. p. 633.—MONŒCIA POLYANDRIA, *Linn.*—AMENTACEÆ, *Juss.*

Leaves oblong, pinnatifido-sinuate, downy beneath, the lobes linear-lanceolate, obtuse, attenuated at the base, entire on the margin ; the fruit pedunculate, the cupule tubercular, flat at the base, cup-shaped, the acorn ovate. Although this species of oak is not abundant in Maine, where the Canada Jay chiefly occurs, I have employed it in my drawing, on account of the rich colouring of its fine leaves during the autumnal months. It is in Louisiana, where it is plentiful, that one must see it, to judge of the grandeur which it attains under favourable circumstances. I have often seen these oaks spreading their young branches amid the tops of *magnolias* fully one hundred feet above the ground, with stems from four to six feet in diameter ; to the height of fifty or more feet, straight as a line, and without a branch to that height. When left in fields, their tops, naturally inclined to spread, render their aspect majestic ; and one is tempted to try to calculate the many years these noble trees have stood against the blasts of the tempest. The wood, which is of excellent quality, being hard and durable, is applied to numerous uses. Its distribution is very extensive in the United States, it being found in the forests from Louisiana to Massachusetts, and in the western countries beyond the Mississippi.

GENUS IV.—NUCIFRAGA. *Briss.* NUTCRACKER.

Bill as long as the head, moderately stout, conical, compressed, at the tip rather depressed ; upper mandible with its dorsal line slightly arcuato-declinate, the ridge convex, the sides rounded, the edges sharp and overlapping, without notch, the tip flattened and obtuse ; lower mandible with the angle short and rounded, the dorsal line straight, the sides convex, the edges sharpened, a little involute, the tip flattened and rather obtuse. Nostrils basal, lateral, roundish, covered by bristly feathers, which are directed forwards. Head large, broadly ovate, neck rather short, body moderately stout. Tarsus rather short, compressed, with eight scutella ; toes stout, the

Clarke's Nutcracker.

1. Male. 2. Female.

Drawn from Nature by J.J.Audubon.F.R.S.F.L.S. Lith.ª Printed & Col.ª by J. T. Bowen, Philad.ª

first very large, the inner a little shorter than the outer, which is adherent at the base. Claws large, arched, much compressed, acute. Plumage soft and blended; no distinct bristles at the base of the upper mandible, wings long, much rounded, the first quill very short, the fourth longest; tail of moderate length, rounded.

CLARKE'S NUTCRACKER.

NUCIFRAGA COLUMBIANA. *Wils.*

PLATE CCXXXV.—MALE AND FEMALE.

No sooner had I examined perfect specimens of this somewhat singularly coloured bird, than I felt assured, more especially from the form of its bill, that it is with us a representative of the Nutcracker of Europe; and I was much surprised, on comparing it with the figure given of it by ALEXANDER WILSON, to find the latter very defective, the bill being nearly half an inch shorter than in four specimens which I have inspected. All that is known of its habits is contained in the following notes from Mr. NUTTALL and Mr. TOWNSEND.

"We first observed this species in a small pine grove, on the borders of Bear river, in the table-land of the Rocky Mountains, where they were probably breeding, in the month of July. We again saw a considerable flock of the young birds early in August, in a lofty ravine near the summit of one of the three belts or isolated mountains, about thirty or forty miles west of the Shoshonee river. They appeared somewhat shy, and scattered through a grove of aspens, flying with a slight chatter, scarcely a caw, from the tops of the bushes or trees, on to the ground, probably in quest of insect food. We never saw this species either on the lower plains or forests of the Columbia, or in any part of Upper California. It appears never to descend below the mountain plains." T. N.

"CLARKE'S Crow, *Corvus columbianus*. First found on Bear river, and afterwards on the Blue Mountains, plentiful. Its flight is very unlike that of the Common Crow, being performed by jerks, like that of the Woodpecker. When sitting, it is almost constantly screaming; its voice is very

harsh and grating, and consists of one rather prolonged note. It breeds here in very high pine trees. The White Pelican also seen here in July, no doubt breeds; also the Canvass-backed Duck, the Shoveller, and Dusky Duck; found young of all of them. The *Corvus columbianus* is never seen within five hundred miles of the mouth of the Columbia. It appears generally to prefer a mountainous country and pine trees; and feeds chiefly on insects and their larvæ." J. K. T.

Clarke's Crow, *Corvus columbianus*, Wils. Amer. Orn., vol. iii. p. 29.
Corvus columbianus, Bonap. Syn., p. 57.
Columbian Crow, Nutt. Man., vol. i. p. 218.
Clarke's Nutcracker, *Nucifraga columbiana*, Aud. Orn. Biog., vol. iv. p. 459.

Male, 12, wing 7$\frac{1}{12}$.
Rocky Mountains.
Adult Male.

Bill as long as the head, stout, somewhat conical, compressed, at the tip rather depressed. Upper mandible with its dorsal line slightly arcuato-declinate, the ridge convex, the sides rounded, the edges sharp and overlapping, without notæ, the tip flattened and obtuse; lower mandible with the angle short and rounded, the dorsal line straight, the sides convex, the edges sharp and a little inflexed, the tip flattened, and rather obtuse. Nostrils basal, lateral, roundish, covered by bristly feathers, which are directed forwards.

Head large, broadly ovate; eyes of moderate size; neck rather short; body compact. Legs of moderate length, stout; tarsus compressed, with seven large anterior scutella and two plates behind, meeting so as to form a sharp edge. Toes stout, with large scutella; the first toe very large, the inner a little shorter than the outer, the hind much longer; the third and fourth united as far as the second joint of the latter. Claws large, arched, much compressed, acute.

Plumage full, very soft and blended; the stiff bristly feathers over the nostrils extend about one-fifth of the length of the bill; and there are no distinct bristles at the base of the upper mandible; the feathers on the head are very short. The wings are long, and much rounded; the first quill two inches shorter than the second, which is ten-twelfths shorter than the third, the latter exceeded two-twelfths by the fourth, which is the longest; the outer primaries being narrow, give the wing, when closed, the appearance of being pointed. Tail of moderate length, rounded, of twelve rather broad feathers, of which the lateral is half an inch shorter than the middle.

Bill and feet brownish-black. Iris hazel. The general colour above and below is light brownish-grey, the forehead, throat, fore part of cheeks, and a space around the eye white, tinged with yellow. Wings black, glossed

with blue; seven of the secondaries largely tipped with white, upper tail-coverts greyish-black; tail pure white, excepting the two middle feathers and the greater part of the inner webs of the next pair, which are black, glossed with blue; lower wing-coverts dusky, some tipped with white; lower tail-coverts pure white.

Length to end of tail 12 inches; bill along the ridge $1\frac{8}{12}$, along the edge of lower mandible $1\frac{9}{12}$; wing from flexure $7\frac{1}{12}$; tail $5\frac{1}{2}$; tarsus $1\frac{4}{12}$; hind toe $\frac{7}{12}$, its claw $\frac{8}{12}$; middle toe $\frac{11}{12}$, its claw $\frac{6}{12}$.

The female is similar to the male.

FAMILY XIX.—LANIINÆ. SHRIKES.

Bill short, of moderate length, stout, broader than high at the base, compressed toward the end; the gap-line slightly arched, the ridge narrow, the notch and dentiform process large, the tip narrow and decurved. Head large, roundish, ovate; neck short; body compact. Legs of moderate length; tarsus compressed, with seven anterior scutella; toes moderate, compressed; hind toe rather stout, lateral about equal, the outer adherent at the base. Claws arched, compressed, acute. Plumage soft and blended. Bristles rather strong. Wings and tail various. Roof of upper mandible narrow, with a median ridge; tongue slender, concave above, horny toward the end, with the margins lacerated, and the tip slit; œsophagus wide, uniform; proventriculus elliptical; stomach broadly elliptical or roundish; its muscular coat thin, the epithelium dense and longitudinally rugous; intestine of moderate length; cœca very small; cloaca oblong or globular. Trachea simple; four pairs of inferior laryngeal muscles.

Genus I.—LANIUS, *Linn.* SHRIKE, or BUTCHER-BIRD.

Bill of moderate length, strong, compressed; upper mandible with the dorsal line a little arched, towards the end decurved, the sides convex, the edges direct, with a large prominence succeeded by a deep notch, the tip decurved and acute; lower mandible with the angle short and wide, the dorsal line convex, the sides convex, the edges inflected, the tip ascending, acute. Nostrils basal, lateral, oval, concealed by the bristly feathers. Head large, broadly ovate; neck short; body robust. Tarsus rather short, compressed, slender, with eight scutella; toes small, the first stout, the lateral nearly equal. Claws rather large, arched, compressed, extremely acute. Plumage soft and blended. Bristles stiff. Wings of ordinary length, first quill very short, fourth longest. Tail long, graduated, or rounded.

THE GREAT AMERICAN SHRIKE.

Lanius Borealis. *Vieill.*

PLATE CCXXXVI.—Male, Female, and Young.

Although this species spends the greater part of the year in our most Eastern States, and in countries still farther north, many individuals remain in the mountainous districts of the Middle States, and breed there. In severe winters it migrates as far south as the neighbourhood of the city of Natchez, on the Mississippi, where I have shot several and seen many more. In Kentucky it is not a rare bird at that season, but along the coast of our Southern States I have never met with it, nor have I heard of its having been seen there.

In spring and summer it retires from the low lands of the Middle States to the mountainous districts, where it generally remains until autumn.

Great American Shrike.

1. Male 2. Female 3. Young.

Crataegus Apiifolia.

Drawn from Nature by J.J.Audubon.F.R.S.F.L.S. Lith.ª Printed & Col.ª by J. T. Bowen. Philad.ª

About the 20th of April, the male and his mate are seen engaged in building their nest, in the covered and secluded parts of the forests. I found several of their nests placed on bushes not above ten feet from the ground, without any appearance of choice as to the tree, but generally towards the top, and placed in a fork. The nest is as large as that of the Robin, and is composed externally of coarse grasses, leaves and moss, internally of fibrous roots, over which is a bed of the feathers of the Wild Turkey and Pheasant (*Tetrao umbellus*). The eggs are four or five, of a dull cinereous tint, thickly spotted and streaked with light brown towards the larger end. The period of incubation is fifteen days.

The young are at first of a dark bluish colour, but when they become covered with feathers, they assume a dull rufous tint above, and are transversely barred with zig-zag lines from the throat to the abdomen. In this state they remain until late in autumn, and might seem to one not acquainted with them to be of a different species. They remain with their parents all that time, and not unfrequently even during winter. Caterpillars, spiders and insects of various kinds form their first food, together with small fruits; but as they grow up, their parents bring them the flesh of small birds, on which they feed greedily even before they leave the nest.

This valiant little warrior possesses the faculty of imitating the notes of other birds, especially such as are indicative of pain. Thus it will often mimic the cries of Sparrows and other small birds, so as to make you believe you hear them screaming in the claws of a Hawk; and I strongly suspect this is done for the purpose of inducing others to come out from their coverts to the rescue of their suffering brethren. On several occasions I have seen it in the act of screaming in this manner, when it would suddenly dart from its perch into a thicket, from which there would immediately issue the real cries of a bird on which it had seized. On the banks of the Mississippi, I saw one which for several days in succession had regularly taken its stand on the top of a tall tree, where it from time to time imitated the cries of the Swamp and Song Sparrows, and shortly afterwards would pitch downwards like a Hawk, with its wings close to its body, seldom failing in obtaining the object of its pursuit, which it would sometimes follow even through the briars and brambles among which it had sought refuge. When unable to secure the prey, it would reascend to its perch, and emit loud and discordant notes of anger. Whenever I could see it strike its victim, it appeared to alight on its back, and instantly strike its head, which on such occasions I have several times found torn open. If not disturbed, the Shrike would then tear up the body, and swallow in large pieces, not well cleared of the feathers, every part excepting the wings. It now and then pursues birds that are on the wing to a considerable distance. Thus, I saw one follow a

Turtle Dove, which, on being nearly caught, pitched on the ground, where its skull was bruised in a moment; but the next instant both birds were in my possession.

The courage, activity, and perseverance of this species, are quite surprising. In winter, when insects are scarce, and small birds rare in the Eastern States, I have known it to enter the cities and attack birds in cages. During my stay at Boston, several of them were brought to me, that had been caught in the apartments in which cages containing Canaries were kept, and in every instance after the little favourite had been massacred. Near the same city I observed an individual poised on wing, in the manner of our Sparrow Hawk, for several minutes at a time, over the withered grass and sedges of salt water meadows, when it suddenly pounced on some small bird concealed there.

Although its feet are small and apparently weak, its claws are sharp, and it is capable of inflicting a pretty severe wound on the finger or hand, It bites with great pertinacity, and will seldom let go its hold unless its throat is squeezed.

Its flight is strong, swift, and sustained: it moves through the air in long undulations which have each an extent of twenty or thirty yards, but it seldom rises very high, unless for the purpose of obtaining a good point of observation, and in its usual flight merely passes over the tops of the low bushes rapidly and in silence, in starts of from fifty to a hundred yards. I never saw one walk or move on the ground.

They are extremely fond of crickets and grasshoppers, as well as other kinds of insects, and they feed on the flesh of birds whenever they can procure it. The individuals which I have kept in cages, appeared well pleased with pieces of fresh beef, but they generally remained dull and sullen until they died. As it was only during winter that I had them in confinement, when no coleopterous insects could be procured, I had no opportunity of observing if, like Hawks, they have the power of throwing up hard particles of the food which they swallow, although I should suppose this to be the case. Their propensity to impale insects and small birds on the sharp points of twigs and on thorns, which they so frequently do at all seasons of the year, is quite a mystery to me, as I cannot conceive what its object may be.

I have represented three of these birds of different sexes and ages, and therefore differing in colour and size.

GREAT AMERICAN SHRIKE or BUTCHER-BIRD, *Lanius Excubitor*, Wils. Amer., Orn., vol. i. p. 74.

LANIUS SEPTENTRIONALIS, Bonap. Syn., p. 72.

LANIUS BOREALIS, *Great Northern Shrike*, Swains. and Rich. F. Bor. Amer. vol. ii. p. 111.

GREAT AMERICAN SHRIKE, Nutt. Man., vol. i. p. 258.

GREAT AMERICAN SHRIKE, *Lanius Excubitor*, Aud. Orn. Biog., vol. ii. p. 534; vol. v. p. 434.

Fourth quill longest, third little shorter, second shorter than sixth, first half the length of second; tail long, graduated; bill brownish-black at the end, paler towards the base; upper parts light ash-grey, the ends of the scapulars and the upper tail-coverts greyish-white; a streak of whitish over the eye; loral space and a patch behind the eye brownish-black; first row of smaller wing-coverts, larger coverts, and quills, brownish-black; secondary quills and coverts edged and tipped with whitish; base of primaries white, forming a conspicuous patch when the wing is extended; tail-feathers brownish-black, outer web of lateral feathers, and more than a third of its inner web from the tip, white; the extremities of all the rest, excepting the middle two, also white, gradually occupying less extent on the inner feathers; lower parts greyish-white, the fore part of the breast tinged with brown, and faintly marked with transverse undulating lines of dark grey, as are the sides. Female similar, but with the head and neck slightly tinged with brown, and the lower parts more banded.

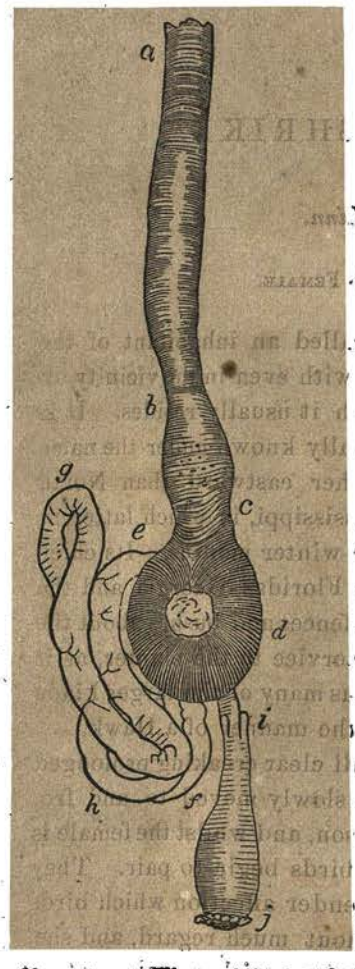
Lanius Excubitor of Europe differs in being considerably smaller, and in having the white on the wings and tail more extended, the bases and a great portion of the inner webs of the secondaries, except the inner three, being of that colour, as well as the bases of the primaries, and forming a conspicuous spot when the wing is closed, and the outer tail-feathers being often white in their whole length.

Male, $10\frac{2}{12}$, $14\frac{2}{12}$.

Breeds from Pennsylvania northward. During winter, migrates westward to the Mississippi, and as far south as Natchez. Not uncommon.

The dimensions of an adult male presented by Dr. T. M. BREWER of Boston, and preserved in spirits, are:—Length to end of tail $10\frac{2}{12}$ inches, to end of wings $7\frac{5}{12}$, to end of claws $8\frac{2}{12}$; extent of wings $14\frac{2}{12}$; wing from flexure $4\frac{8}{12}$; tail $4\frac{8}{12}$.

The roof of the mouth is nearly flat, with a median prominent ridge anteriorly, and two papillate ridges behind. The posterior aperture of the nares is 7 twelfths long; the tongue is slender, 7 twelfths long, emarginate and papillate at the base, concave above, horny toward the end, the margins lacerated, the tip slit. The width of the mouth is 7½ twelfths. The œsophagus, *a b c*, is 2 inches 10 twelfths long, of considerable width, having an average breadth of 4 twelfths; the proventriculus, *b c*, 5 twelfths in width, its glands forming a belt only 3 twelfths in breadth. The stomach, *d e*, is broadly elliptical, 11 twelfths long, 9½ twelfths broad; its muscular coat thin, being composed of strong parallel fasciculi, its thickest part not exceeding 1



twelfth ; the epithelium thin, tough, reddish-brown, longitudinally rugous. The pylorus is very small, with a semilunar margin. The intestine, *e f g h i j*, is 12 inches long, its greatest width 3 twelfths, the least 2 twelfths ; the cœca, *i*, 2 twelfths long, and scarcely ½ twelfth wide, their distance from the extremity 1 inch ; the cloaca, *j*, oblong ; its width about 6 twelfths. The stomach contained portions of a mouse, including two front teeth.

The trachea is 2 inches 4 twelfths long, 2 twelfths broad at the upper part, 1½ twelfths at the lower ; its rings about 55, with 2 dimidiate rings ; it is considerably flattened below, but roundish at the upper part. The bronchi are of moderate size, with about 12 half rings. The muscles are as in the Thrushes, there being four pairs of inferior laryngeal, of large size.

In another individual, the tongue is 7 twelfths long, the mouth 8 twelfths in width ; the œsophagus 3 inches long, its average width 3½ twelfths ; the intestine 12 inches long. The lobes of the liver are very unequal, the left smaller. The aperture of the ear of moderate size, roundish, 2 twelfths in diameter. The contents of the stomach were a small bird and some insects.

CRATÆGUS APIIFOLIA, *Mich.* Fl. Amer., vol. i. p. 287. *Pursh*, Fl. Amer. Sept., vol. i. p. 336.—ICOSANDRIA PENTAGYNIA, *Linn.*—ROSACEÆ, *Juss.*

This species of *hawthorn* bears a great resemblance to that so common in Europe. It grows on the banks of rivers and in damp woods in several of the Southern States, and attains a height of twelve or fifteen feet. The leaves are somewhat triangular in their general outline, inciso-lobate, the lobes acute and deeply toothed ; the flowers white, and the berries ovate or oblong, of a deep red colour.

Loggerhead Shrike.

1. Male 2. Female.

Greenbriar or Round-leaved Smilax Smilax Rotundifolia.

Drawn from Nature by J. J. Audubon, F.R.S.F.L.S.

Lith.d Printed & Col.d by J. T. Bowen, Philad.a

THE LOGGERHEAD SHRIKE.

LANIUS LUDOVICIANUS, *Linn.*

PLATE CCXXXVII.—MALE AND FEMALE.

This species may with great propriety be called an inhabitant of the "Low Countries," as it is seldom or never met with even in the vicinity of the mountains intersecting the districts in which it usually resides. It is also confined to that portion of our country usually known under the name of the Southern States, seldom reaching farther eastward than North Carolina, or farther inland than the State of Mississippi, in which latter, as well as in Louisiana, it appears only during the winter months. Its chief residence may, therefore, be looked upon as the Floridas, Georgia, and the Carolinas. In these States, it is seen along the fences and bushes about the rice plantations, at all seasons, and is of some service to the planter, as it destroys the field-mice in great numbers, as well as many of the larger kinds of grubs and insects, upon which it pounces in the manner of a Hawk.

The Loggerhead has no song, but utters a shrill clear creaking prolonged note, resembling the grating of a rusty hinge slowly moved to and fro. This sound is heard only during the spring season, and whilst the female is sitting. About the beginning of March these birds begin to pair. They exhibit at this time few of those marks of the tender affection which birds usually shew. The male courts the female without much regard, and she, in return, appears to receive his haughty attentions with merely just as much condescension as enables her to become the mother of a family, whose feelings are destined to be of the same cold nature.

The nest is fixed in a low bush, generally near the centre of a dwarf hawthorn, and is so little concealed as to be easily discovered. It is coarsely constructed of dry crooked twigs, and is lined with fibrous roots and slender grasses. The eggs, which are of a greenish-white, are from three to five. Incubation is performed by the male as well as by the female, but each searches for its own food during the intervals of sitting.

The young are at first fed on crickets, grasshoppers, and other insects; but as they become larger and stronger, they receive portions of mice, which form the principal food of the grown birds at all seasons. The Loggerheads rear only one brood in the season.

Whilst this species is on wing, its motions are very rapid and direct, its

flight being produced by quick flutterings of the wings, without any apparent undulation. The bird alights in a sudden firm manner, like a Hawk, stands erect, silent and watchful, until it spies its prey on the ground, when it suddenly pounces upon it, striking it first *with its bill*, but seizing it with its claws so immediately after, that the most careful observation alone can enable one to decide as to the priority of either action. I have never seen it attack birds, nor stick its prey on thorns in the manner of the Great American Shrike.

This bird appears in Louisiana only at intervals, and seldom remains more than a few weeks in December or January. It never comes near houses, although it frequents the fields around them. It has no note at this period and appears singly, alighting on the stacks and fences, where it stands perched for a considerable time, carefully looking around over the ground. As soon as the spot is thoroughly examined, it flies off to another, and there renews its search.

I have received specimens of our Loggerhead Shrike, of both sexes and of various ages, from Mr. TOWNSEND, who procured them on the Rocky Mountains and in the Columbia river district. These specimens are in no respect different from those which I have obtained in South Carolina, where it is plentiful. That this species should occur on both sides of the continent is not very remarkable, as several other birds are in the same predicament. The Fish Crow, for example, affords a more striking instance, as it is rarely found beyond the maritime districts; whereas the Loggerhead Shrike extends its movements far inland in the States of Georgia, Alabama, and Louisiana. This species has been given as new, under the name of *Lanius Excubitoroides*, in the Fauna Boreali-Americana; but the description and figure indicate nothing peculiar; and the nest and eggs described by Mr. DRUMMOND, especially the latter, are similar to those of the Carolina-bird.

My account of the habits of this species being meagre, I have great pleasure in laying before you the observations of my friend the Rev. Dr. BACHMAN, who has had much better opportunities of studying them. "Your description of this bird requires, I think, many additions. You say it has no song. This is true in part, but it has other notes than the grating sounds you attribute to it. During the breeding season, and indeed nearly all summer, the male ascends some cedar or other tree, and makes an effort at a song, which I cannot compare to anything nearer than the first attempts of a young Brown Thrush. He seems to labour hard, making as it were almost painful exertions. At times the notes are not unpleasing, but very irregular.

"You speak of the male shewing but little attachment to the female. I have thought differently, and so would you were you to watch him carrying every now and then a grasshopper or cricket to her, pouncing upon the

Crow and even the Buzzard, that approach his nest, and invariably driving these intruders away. Indeed I consider these birds as evidencing great attachment toward each other.

"I have usually found the nest on the outer limbs of a tree, frequently the live-oak, sometimes the black-gum (*Liquidambar styraciflua*), and often on a cedar, from fifteen to thirty feet from the ground. Once only I saw it lower, on the toothache bush, *Xanthoxylum*, about ten feet high.

"I have occasionally seen this bird with young mice in its mouth, and have found it feeding on birds that had apparently been wounded by the sportsman. It sometimes catches young birds and devours them; but I am induced to think, from the observation of many years, that the food of the Loggerhead Shrike consists principally of insects. Grasshoppers and crickets are preferred; coleopterous and other insects are also frequently seized; and I have seen it catch moths and butterflies on wing. This bird has the same propensity as the Northern Shrike, to stick grasshoppers and other insects on thorns. I have seen one occupy himself for hours in sticking up in this way a number of small fishes that the fishermen had thrown on the shore; but I never found either this or the Northern Shrike return to seek this prey for food at any other time; but on the contrary, the fishes dried up and decayed. I have seen them alight on the same thorn-bush afterwards, but never make use of this kind of food. May it not be the same propensity which Jays have, who conceal nuts and grain, and apparently do not return to devour them?

"The Loggerhead Shrike is partially migratory in Carolina. A few may be found through the winter; but the number is ten times greater in summer; and such is also the case with the Mocking-bird. It appears fond of the little changeable Green Lizard (*Anolius Carolinensis*, Cuv.), and I have seen exertions of skill and activity on the one part in seizing, and on the other in avoiding their enemy, but the reptile, in spite of all its agility, is frequently secured. On one occasion I had marked a lizard of this species on a fence. It was then beautifully green; but on being chased by a Shrike, which observing me flew off, I found that it had become quite brown.

"This species breeds twice in a season, lays four and sometimes five white eggs. Occasionally it feeds on the small black berries of a species of *Smilax*; this is in winter, when it is probably pinched for food. I have noticed it building its nest in the same tree for a succession of years, never repairing an old nest but always building a new one."

According to Mr. SWAINSON this species is found on the table-land of Mexico, where it is very common.

I have given you, kind reader, the representation of a pair of these Shrikes, contending for a mouse. The difference of plumage in the sexes is

scarcely perceptible; but I have thought it necessary to figure both, in order to show the quarrelsome disposition of these birds even when united by the hymeneal band.

Loggerhead Shrike, *Lanius Carolinensis*, Wils. Amer. Orn., vol. iii. p. 57.
Lanius ludovicianus, Bonap. Syn., p. 72.
Lanius Excubitoroides, *American Grey Shrike*, Swains. and Rich. F. Bor. Amer., vol. ii. p. 115.
Loggerhead Shrike, Nutt. Man., vol. i. p. 261.
Loggerhead Shrike, *Lanius ludovicianus*, Aud. Orn. Biog., vol. i. p. 300; vol. v. p. 435.

Third quill longest, fourth scarcely shorter, second and sixth equal; tail rather long, graduated; bill black, upper parts deep leaden-grey, lower greyish-white, the sides bluish-grey; a streak of whitish over the eye, and margining the forehead; loral space, and a patch behind the eye, black; posterior scapulars almost entirely white; quills and coverts black, secondaries narrowly tipped with white; bases of primaries white, forming a conspicuous patch on the extended wing; tail-feathers black, all except the middle pair white at the end, that colour occupying nearly two-thirds of the outer, and gradually diminishing on the rest. Female with the plumage somewhat darker. Young brownish-white beneath, the breast and sides transversely barred with dark grey.

Male, 8½, 13.

From Louisiana to Carolina, laterally to the Columbia river, and northward to the Fur Countries. Abundant. Resident in the south. Migratory in the north.

A male preserved in spirits measures 8$\frac{19}{12}$ inches in length; extent of wings 12; wing from flexure 4; tail 4½.

The roof of the mouth is as in the other species; its width 7 twelfths; the tongue is 6 twelfths, the posterior aperture of the nares 5 twelfths. The lobes of the liver are very unequal, the right being the largest. The œsophagus is 2¾ inches long, 4 twelfths in width, but on entering the thorax contracting to 2½ twelfths; the proventriculus 3 twelfths. The stomach is irregularly elliptical, a little compressed; the muscles thin, especially the lower; the epithelium thin, tough, brownish-red, with longitudinal rugæ. The intestine is 9 inches long, from 3 twelfths to 1 twelfth wide; the cœca extremely small, 2½ twelfths long, ¼ twelfth wide; the cloaca small and oblong.

The trachea is 2½ inches long, moderately flattened, 1$\frac{8}{12}$ twelfths broad at the commencement, 1 twelfth at the lower part; the rings firm, about 56, with 2 dimidiate rings. The lateral muscles are very slender, as are the sterno-tracheal, and there are four pairs of inferior laryngeal muscles on each

side, forming a large pad, as in the Thrushes. In this respect the Shrikes resemble the *Turdinæ* and *Sylvianæ*, much more than the Flycatchers, of which the inferior laryngeal muscles are small and blended. The bronchi are moderate, of about 12 half rings.

The Green Briar, or Round-leaved Smilax.

Smilax rotundifolia, *Willd.*, Sp. Pl., vol. iv. p. 779. *Pursh*, Flor. Amer., vol. i. p. 250.—Dicœcia Hexandria, *Linn.*—Asparagi, *Juss.*

This species of *smilax*, which is common along fences, in old fields, and by the borders of woods, is characterized by its shrubby stem, round branches, roundish-ovate, acuminate, slightly cordate, five or seven-nerved leaves, and spherical berries. It flowers in May and June. The berries are of a dark purple colour

The Field Mouse.

This species is found in all parts of the United States, living in the meadows and woods. It forms narrow subterranean passages, to which it resorts on the least appearance of danger, but from which it is easily driven, by thrusting a twig into them.

FAMILY XX.—VIREONINÆ. GREENLETS.

Bill of moderate length, straight, rather stout, compressed toward the end; gap-line slightly arched, notches distinct, tip very small, declinate. Head rather large, ovate; neck short; body rather slender. Feet of moderate length; tarsus compressed, slender, with seven anterior scutella; toes rather small, hind toe rather stout, lateral equal. Claws moderate, arched, compressed, acute. Plumage soft and blended. Wings of moderate length, rather pointed. Tail of moderate length, even or emarginate. Roof of upper mandible concave, with a median ridge; tongue narrow, flat above, with the point slit; œsophagus of moderate length, without dilatation; stomach roundish, muscular, with a dense rugous epithelium; intestine short, and rather wide; cœca very small. Trachea simple, with four pairs of inferior laryngeal muscles.

GENUS I.—VIREO, *Vieill.* GREENLET.

Bill rather short or of moderate length, rather strong, straight, broader than high at the base, compressed toward the end; upper mandible with the dorsal line slightly convex, the ridge narrow, the sides sloping and towards the end somewhat convex, the edges straight, the notches distinct, the tip small, decurved, acute; lower mandible with the angle of moderate length and rather narrow, the dorsal line ascending and rather convex, the sides convex, the edges inclinate, the tip acute and ascending. Nostrils basal, oblong. Head rather large, ovate; neck short; body rather stout. Tarsus rather short, slender, compressed, with seven scutella; toes small, first large, inner considerably shorter than outer, which is adnate at the base. Plumage soft and blended; bristles small. Wings rather long, with the second and third quills longest, the first not much shorter. Tail of moderate length, nearly even.

Yellow-throated Vireo, or Greenlet.

Male

Swamp Snowball Hydrangea quercifolia.

Drawn from Nature by J.J.Audubon F.R.S.F.L.S. Lith.d Printed & Col.d by J. T. Bowen Philad.a

THE YELLOW-THROATED VIREO, OR GREENLET.

VIREO FLAVIFRONS, *Vieill.*

PLATE CCXXXVIII.—MALE.

While the small White-eyed Vireo rambles among the low bushes and brambles of the fields of all parts of the United States, the Yellow-throated species takes possession of the forest, and gleans with equal ease among the branches of the tallest trees, to which it seems to give a marked preference during the spring and summer. It is fond of the quietest solitudes, and in its habits is nearly allied to the Red-eyed Vireo. Like it also, it is a slow, careful, and industrious bird, never imitating the petulant, infantile, and original (if I may so speak) freaks of its gay relative, the White-eyed. It is more silent than either of the species above mentioned, although its notes have a strong resemblance to those of the Red-eyed. These notes are more measured and plaintive than those of any of its tribe, sometimes consisting of sounds resembling the syllables *prēe-ā, prēe-ā*, rising and falling in sweet modulation. One might imagine them the notes of a bird lost in the woods, and they make a strong impression on the mind of the listener. Now and then the sight of his mate seems to animate the male, when he repeats the same syllables eight or ten times in succession. When sitting pensively on a twig, as if waiting for an invitation to sing, it utters a kind of whining sound, and in autumn, as well as during its retrograde march towards the south, it becomes quite silent.

When searching for food, it ascends the branches of trees by regular short hops, examining with care every leaf and bud in its way, never leaving a branch for another until it is quite assured that nothing remains on it. When flying to some distance, its motions, although quick, are irregular, and it passes among the boughs at a moderate height.

This species is at all times extremely rare in Louisiana, where I have seen it only during early spring or late in the autumn. My friend BACHMAN has never observed it in South Carolina. Indeed, it is only from Pennsylvania eastward that it is met with in any quantity. During summer it feeds entirely on insects, devouring with equal pleasure caterpillars, small moths, wasps, and wild bees. The summer over, it ranges among the low bushes in search of berries, accompanied by its young, and at that time enters the orchards and gardens even of our villages and cities. It arrives

in Pennsylvania and New Jersey about the end of April, and in Massachusetts and Maine about a month later.

The nest of the Yellow-throated Vireo is truly a beautiful fabric. It sometimes extends to five or six inches in depth, and as it is always placed at the extremity of small twigs, it is very conspicuous. It is attached to these twigs with much care by slender threads of vines, or those of other trees at its upper edges, mixed with the silk of different caterpillars, and enclosed with lichens, so neatly attached by means of saliva, that the whole outer surface seems formed of them, while the inner bed, which is about two and a half inches in diameter, by an inch and a half in depth, is lined with delicate grasses, between which and the bottom coarser materials are employed to fill the space, such as bits of hornets' nests, dry leaves, and wool. The eggs, which are four or five in number, are of an elongated form, white, spotted with reddish-brown or black. The young are out about the beginning of July. In Maine it raises one brood only, but farther south not unfrequently two.

Yellow-throated Flycatcher, *Muscicapa sylvicola*, Wils. Amer. Orn., vol. ii. p. 117.
Vireo flavifrons, Bonap. Syn., p. 70.
Yellow-throated Vireo, Nutt. Man., vol. i. p. 302.
Yellow-throated Flycatcher or Vireo, *Vireo flavifrons*, Aud. Orn. Biog., vol. ii. p. 119; vol. v. p. 428.

Male.

Upper parts light green, the rump, scapulars, and smaller wing-coverts bluish-grey; quills and coverts brownish-black; two bands of white on the wing, formed by the tips of the secondary coverts and first row of small coverts; primaries narrower, edged with yellowish-green, secondaries broadly with white; tail-feathers brownish-black, the outer edged with white; sides of the neck yellowish-green; a line over the eye, throat, and breast yellow, the rest of the lower parts white.

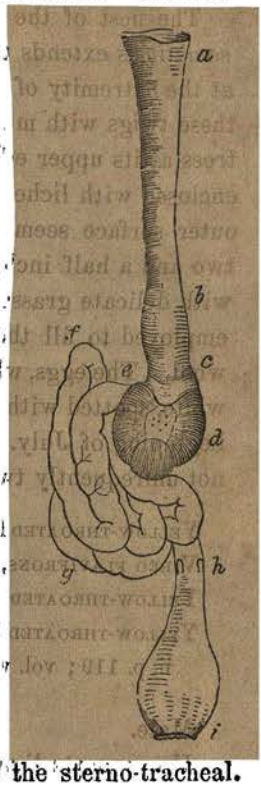
Male, 5¾, 9½.

From Texas to Nova Scotia. Rare in the interior, more abundant in the middle Atlantic districts. Migratory.

The egg of this bird measures thirteen-sixteenths of an inch in length, by five-eighths, is of a slightly elongated form, oval, from the smaller end being rather rounded, and is marked with a few scattered spots of a deep brownish-crimson, on a beautiful flesh-coloured ground.

In a male preserved in spirits, the roof of the mouth is slightly concave, with two palatal ridges, and an anterior median ridge; the posterior aperture of the nares is linear-oblong, 5 twelfths in length, its margins papillate. The tongue is rather short, 4½ twelfths long, narrow, triangular, very thin,

emarginate and papillate at the base, flat above, tapering to a horny, deeply slit, lacerated point. The width of the mouth is 4½ twelfths. The œsophagus is 1 inch 9 twelfths long, funnel-shaped at the commencement, at the distance of half an inch its width is 1¾ twelfths, and thus continues until it enters the thorax, soon after which it enlarges to form the proventriculus, of which the breadth is 3 twelfths. The stomach is of moderate size, of a broadly elliptical form, considerably compressed; its length 6 twelfths, its breadth 5 twelfths, its muscles pretty large and distinct, its tendons of moderate size; the epithelium thin, reddish-brown, with eight longitudinal rugæ on one side, and five on the other. The belt of proventricular glandules is 2½ twelfths broad. The intestine is 5¾ inches long, from 1½ twelfths to 1 twelfth in width, the rectum 2 twelfths at first, the cloaca globular, about 4 twelfths; the cœca 1¼ twelfths long, about ¼ twelfth wide, and placed at the distance of 9 twelfths from the extremity.



The trachea is 1 inch 2 twelfths long, from 1 twelfth to ¾ twelfth in width, moderately flattened, its rings rather firm, about 50, with 2 dimidiate; the muscles disposed as in the Thrushes and Warblers, there being four pairs of inferior laryngeal on each side, besides the sterno-tracheal. The bronchi short, slender, of about 10 half rings.

THE SWAMP SNOWBALL.

HYDRANGEA QUERCIFOLIA, *Willd.*, Sp. Pl., vol. ii. p. 634. *Pursh*, Flor. Amer. Sept., vol. i. p. 309.—DECANDRIA DIGYNIA, *Linn.*—SAXIFRAGÆ, *Juss.*

This plant is found on the broken sandy banks bordering small watercourses, and is abundant in such situations in the uplands of Louisiana. It seldom grows beyond the size of a bush. The blossoms are lasting, and although without odour, are pleasing to the eye, on account of their pure white colour when first expanded; they dry on the stalks, retaining their form, and remaining until winter. The species is characterized by its oblong, deeply sinuate leaves, which are downy beneath, and its radiated loosely thyrsiform cymes.

THE SOLITARY VIREO, OR GREENLET

VIREO SOLITARIUS, *Vieill.*

PLATE CCXXXIX.—MALE AND FEMALE.

This, reader, is one of the scarce birds that visit the United States from the south, and I have much pleasure in being able to give you an account of it, as hitherto little or nothing has been known of its history.

It is an inhabitant of Louisiana during the spring and summer months, when it resorts to the thick cane-brakes of the alluvial lands near the Mississippi, and the borders of the numberless swamps that lie in a direction parallel to that river. It is many years since I discovered it, but as I am not at all anxious respecting priority of names, I shall not insist upon this circumstance. In the month of May 1809, I killed a male and a female of this species, near the mouth of the Ohio, while on a shooting expedition after young Swans. The following spring, I killed a female near Henderson in Kentucky. In 1821, I again procured a pair, with their nest and eggs, near the mouth of Bayou La Fourche, on the Mississippi, and since that period have killed eight or ten pairs.

The nest is prettily constructed, and fixed in a partially pensile manner between two twigs of a low bush, on a branch running horizontally from the main stem. It is formed externally of grey lichens, slightly put together, and lined with hair, chiefly from the deer and racoon. The female lays four or five eggs, which are white, with a strong tinge of flesh-colour, and sprinkled with brownish red dots at the larger end. I am inclined to believe that the bird raises only one brood in a season.

The manners of this bird are not those of the Titmouse, Flycatcher, or Warbler, but partake of those of all three. It has the want of shyness exhibited in the Red-eyed and Yellow-throated Vireo. It hangs to bunches of small berries, feeding upon them as a Titmouse does on buds of trees; and again searches amongst the leaves and along the twigs of low bushes, like most of the Warblers. On the other hand, it differs from all these in their principal habits. Thus, it never snaps at insects on the wing, although it pursues them; it never attacks small birds and kills them by breaking in their skulls, as the Titmouse does; nor does it hold its prey under its foot in the way of the Yellow-throated Vireo, a habit which allies the latter to the Shrikes.

Solitary Vireo or Greenlet

1. Male. 2. Female.

American Cane . Miegia macrosperma

Drawn from Nature by J.J.Audubon F.R.S.F.L.S. Lith.ª Printed & Col.ª by J. T. Bowen. Philad.ª

The flight of this bird is performed by a continued *tremor* of the wings, as if it were at all times angry. It seldom rises high above its favourite cane-brakes, but is seen hopping up and down about the stems of low bushes and the stalks of the canes, silently searching for food, more in the manner of the Worm-eating Warbler than in that of any other bird known to me. Their confidence at the approach of man is very remarkable. They look on without moving until you are within a few feet, and retire only in proportion as you advance towards them. In this respect it resembles the White-eyed Vireo.

When wounded by a shot, it remains quite still on the ground, opens its bill when you approach it, and bites with all its might when laid hold of, although its strength is not sufficient to enable it to inflict a wound. I have never heard it utter a note beyond that of a querulous low murmuring sound, when chasing another bird from the vicinity of its nest. The young all leave the nest, if once touched, and hide among the grass and weeds, where the parents continue to feed them. I once attempted to feed some young birds of this species, but they rejected the food, which consisted of flies, worms, and hard-boiled eggs, and died in three days without ever uttering a note. In 1829, I shot one of these birds, a fine male, in the Great Pine Swamp in Pennsylvania.

This species is an inhabitant of the Columbia river district, where several specimens were procured by Mr. TOWNSEND. I found it abundant in Maine, and it reaches Pictou in Nova Scotia, beyond which I saw none on my way to Labrador. We found it in the Texas, arriving from farther south late in April. My friend Dr. BACHMAN informs me that it is "every year becoming more abundant in South Carolina, where it remains from about the middle of February to that of March, keeping to the woods. It has a sweet and loud song of half a dozen notes, heard at a considerable distance." Mr. NUTTALL has favoured me with the following notice respecting it:—

"About the beginning of May, in the oaks already almost wholly in leaf, on the banks of the Columbia, we heard around us the plaintive deliberate warble of this species, first mentioned by WILSON. Its song seems to be intermediate between that of the Red-eyed and Yellow-breasted species, having the *preai, preai,* &c. of the latter, and the fine variety of the former in its tones. It darted about in the tops of the trees, incessantly engaged in quest of food, and now and then disputing with some rival. The nest of this bird is made much in the same manner as that of *Vireo olivaceus*. One which I examined was suspended from the forked twig of the wild crab-tree, at about ten feet from the ground. The chief materials were dead and whitened grass-leaves, with some cobwebs agglutinated together as usual, externally scattered with a few shreds of moss (*Hypnum*) to resemble the

branch on which it hung; here and there were also a few of the white paper-like capsules of the spider's nest, and it was lined with fine blades of grass and slender root fibres. The situation, as usual, was open, but shady."

SOLITARY FLYCATCHER, *Muscicapa solitaria*, Wils. Amer. Orn., vol. ii. p. 143.
VIREO SOLITARIUS, Bonap. Syn., p. 79.
SOLITARY VIREO or FLYCATCHER, *Vireo solitarius*, Nutt. Man., vol. ii. p. 305.
SOLITARY FLYCATCHER or VIREO, *Vireo solitarius*, Aud. Orn. Biog., vol. i. p. 147; vol. v. p. 432.

Upper parts light olive-green, head greyish-blue; lower white, the sides greenish-yellow; eyelids and a band of white from the bill over the eye; a dusky spot before the eye; quills and coverts brownish-black; two bands of white on the wing, formed by the tips of the secondary coverts and first row of small coverts; primaries narrowly edged with yellowish-green, secondaries broadly with white; tail-feathers brownish-black, the outer edged with white; head and sides of neck inclining to greyish-blue.

Male, 5½, 8½.

From Texas to Nova Scotia, rather abundant. Rare in the interior. Columbia river. Migratory

THE AMERICAN CANE.

MIEGIA MACROSPERMA, *Pursh*, Fl. Amer., vol. i. p. 59.—ARUNDINARIA MACROSPERMA, *Mich.*, Fl. Amer., vol. i. p. 74.—TRIANDRIA MONOGYNIA, *Linn.*—GRAMINEÆ, *Juss.*

THE WHITE-EYED VIREO, OR GREENLET.

VIREO NOVEBORACENSIS, *Gmel.*

PLATE CCXI.—MALE.

This interesting little bird enters the State of Louisiana often as early as the 1st of March. Indeed, some individuals may now and then be seen a week or ten days sooner, provided the weather be mild. It throws itself into the thickest part of the briars, sumachs, and small evergreen bushes,

White-eyed Vireo or Greenlet.

Male.

Pride of China, or Bead tree. Melia Azedarach.

Drawn from Nature by J.J. Audubon, F.R.S.F.L.S. Lith.d Printed & Col.d by J.T. Bowen, Phila.d

which form detached groves in abandoned fields, where its presence is at once known by the smartness of its song. The song is composed of many different notes, emitted with great spirit, and a certain degree of pomposity, which makes it differ materially from that of all other Flycatchers. It is frequently repeated during the day.

These birds become at once so abundant, that it would be more difficult not to meet one, than to observe a dozen or more, during a morning walk. Their motions are as animated as their music. They pass from twig to twig, upwards or downwards, examining every opening bud and leaf, and securing an insect or a larva at every leap. Their flight is short, light, and easy. Their migrations are performed during the day, and by passing from one low bush to another, for these birds seldom ascend to the tops of even moderately tall trees. Like all our other visiters, they move eastward as the season opens, and do not reach the Middle States before the end of April, or the beginning of May. Notwithstanding this apparently slow progress, they reach and disperse over a vast expanse of country. I have met with some in every part of the United States which I have visited.

Many remain in Louisiana, where they rear two broods, perhaps sometimes three, in a season. Of this, however, I am not quite certain. I never saw them alight on the ground, unless for the purpose of drinking, or of procuring fibrous roots for their nests. They are fond of sipping the dew drops that hang at the extremities of leaves. Their sorties after insects seldom extend beyond the bushes.

About the first of April, the White-eyed Flycatcher forms a nest of dry slender twigs, broken pieces of grasses, and portions of old hornets' nests, which have so great a resemblance to paper, that the nest appears as if studded with bits of that substance. It is lined with fine fibrous roots, and the dried filaments of the Spanish moss. The nest is of the form of an inverted cone, and is fastened to two or three twigs of a *green briar*, a species of *smilax* abundant in the old fields and along the fences. The eggs are from four to six, of a pure white, with a few dark spots near the larger end. In those districts where the Cow-bird is found, it frequently drops one of its eggs among them. I have seen the first brood from the nest about the middle of May. Unless when disturbed while upon its nest, this bird is extremely sociable, and may be approached within a few feet; but when startled from the nest, it displays the anxiety common to almost all birds on such occasions. The difference of colour in the sexes is scarcely perceptible.

I have ascertained that this species is a constant resident in the Floridas during winter, as well as in the lower parts of Alabama and Georgia. A great number, however, pass beyond our limits, for at Galveston Island I found them arriving from the south. It extends its movements across the

whole continent, Mr. TOWNSEND having met with it on the Columbia river. Along our Atlantic districts it is found sparingly in summer as far as Nova Scotia, and a few were seen by me in Labrador. The eggs measure four-eighths and three-fourths in length, and half an inch in breadth.

The figure of a male has been given on a branch of the tree called in Louisiana the *Pride of China*, an ornamental plant, with fragrant flowers. The wood is extremely valuable on account of its great durability, and is employed for making posts and rails for the fences. Being capable of receiving a beautiful polish, it is also frequently made into various articles of furniture. For these reasons, the planters have found it expedient to adopt measures for increasing the propagation of this tree. It bears a pulpy fruit inclosing a hard seed, which is swallowed by different birds during the winter months. It has been thought deleterious, but without reason. A decoction of the root is used by the planters as an effectual vermifuge.

WHITE-EYED FLYCATCHER, *Muscicapa cantatrix*, Wils. Amer, Orn., vol. ii. p. 266.
VIREO NOVEBORACENSIS, Bonap. Syn., p. 70.
WHITE-EYED VIREO OR FLYCATCHER, *Vireo noveboracensis*, Nutt. Man., vol. i. p. 806.
WHITE-EYED FLYCATCHER OR VIREO, *Vireo noveboracensis*, Aud. Orn. Biog., vol. i. p. 328; vol. v. p. 431, 433.

Male, 5, 7.

Throughout the United States and Nova Scotia. Columbia river. Migratory, but great numbers spend the winter in the Southern States.

Adult Male.

Bill shortish, nearly straight, rather strong, conico-acuminate, compressed towards the end; upper mandible slightly notched, and a little deflected at the tip; lower mandible ascending at the tip. Nostrils basal, rounded. Head and neck of ordinary size; body rather slender. Feet of ordinary length, slender; tarsus anteriorly scutellate; lateral toes nearly equal.

Plumage blended, soft and tufty. Wings shortish, the third quill longest. Tail even, of twelve rounded feathers.

Upper mandible blackish-blue, lower light blue. Iris white. Feet greyish-blue. The general colour of the upper parts is light olive, the head greener. Sides of the head, including a line above the eye, and the loral space, bright yellow. Quills, large coverts, and tail, wood-brown, the quills edged externally with greenish-yellow, the larger coverts tipped with white, forming two bands. Sides of the neck tinged with bluish-grey; the under parts greyish-white, excepting the sides, which are yellow.

Length 5 inches, extent of wings 7; bill along the ridge $\frac{3}{12}$, along th gap $\frac{7}{12}$.

The female scarcely differs from the male in external appearance

Warbling Vireo or Greenlet.

1. Male 2. Female.

Swamp Magnolia.

Drawn from Nature by J.J. Audubon, F.R.S.F.L.S.

Lith^d Printed & Col^d by J. T. Bowen Philad^a.

THE PRIDE OF CHINA, OR BEAD-TREE.

MELIA AZEDARACH, *Linn.*, Sp. Plant., p. 550.—DECANDRIA MONOGYNIA, *Linn.*—MELIÆ, *Juss.*

Distinguished by its bipinnate shining leaves, with ferruginous dots beneath. In the south of Europe, the nuts are bored and strung by the Roman Catholics.

THE WARBLING VIREO, OR GREENLET.

VIREO GILVUS, *Vieill*

PLATE CCXLI.—MALE AND FEMALE.

While at the little village, now the city of Camden, in New Jersey, where I had gone for the purpose of watching the passage of certain Warblers on their way north early in the month of May, I took lodgings in a street ornamented with a long avenue of tall Lombardy poplars, one of which almost touched my window. On it too I had the pleasure shortly afterwards of finding the nest of this interesting little bird. Never before had I seen it placed so low, and never before had I an opportunity of examining it, or of observing the particular habits of the species with so much advantage. The nest, although formed nearly in the same manner as several others, which I have since obtained by cutting them down with rifle balls, from the top twigs of the tall trees to which they were attached, instead of being fastened in the fork of a twig, was fixed to the body of the tree, and that of a branch coming off at a very acute angle. The birds were engaged in constructing it during eight days, working chiefly in the morning and evening. Previous to their selecting the spot, I frequently saw them examining the tree, warbling together as if congratulating each other on their good fortune in finding so snug a place. One morning I observed both of them at work; they had already attached some slender blades of grass to the knots on the branch and the bark of the trunk, and had given them a circular disposition. They continued working downwards and outwards, until the structure

exhibited the form of their delicate tenement. Before the end of the second day, bits of hornets' nests and particles of corn-husks had been attached to it by pushing them between the rows of grass, and fixing them with silky substances. On the third day, the birds were absent, nor could I hear them anywhere in the neighbourhood, and thinking that a cat might have caught them from the edge of the roof, I despaired of seeing them again. On the fourth morning, however, their notes attracted my attention before I rose, and I had the pleasure of finding them at their labours. The materials which they now used consisted chiefly of extremely slender grasses, which the birds worked in a circular form within the frame which they had previously made. The little creatures were absent nearly an hour at a time, and returned together bringing the grass, which I concluded they found at a considerable distance. Going into the street to see in what direction they went, I watched them for some time, and followed them as they flew from tree to tree towards the river. There they stopped, and looked as if carefully watching me, on which I retired to a small distance, when they resumed their journey, and led me quite out of the village, to a large meadow, where stood an old hay-stack. They alighted on it, and in a few minutes each had selected a blade of grass. Returning by the same route, they moved so slowly from one tree to another, that my patience was severely tried. Two other days were consumed in travelling for the same kind of grass. On the seventh I saw only the female at work, using wool and horse-hair. The eighth was almost entirely spent by both in smoothing the inside. They would enter the nest, sit in it, turn round, and press the lining, I should suppose a hundred times or more in the course of an hour. The male had ceased to warble, and both birds exhibited great concern. They went off and returned so often that I actually became quite tired of this lesson in the art of nest-building, and perhaps I should not have looked at them more that day, had not the cat belonging to the house made her appearance just over my head, on the roof, within a few feet of the nest, and at times so very near the affrighted and innocent creatures, that my interest was at once renewed. I gave chase to grimalkin, and saved the Vireos at least for that season.

In the course of five days, an equal number of eggs was laid. They were small, of a rather narrow oval form, white, thinly spotted with reddish-black at the larger end. The birds sat alternately, though not with regularity as to time, and on the twelfth day of incubation the young came out. I observed that the male would bring insects to the female, and that after chopping and macerating them with her beak, she placed them in the mouth of her young with a care and delicacy which were not less curious than pleasing to me. Three or four days after, the male fed them also, and I

thought that I saw them grow every time I turned from my drawing to peep at them.

On the fifteenth day, about eight in the morning, the little birds all stood on the border of the nest, and were fed as usual. They continued there the remainder of the day, and about sunset re-entered the nest. The old birds I had frequently observed roosted within about a foot above them. On the sixteenth day after their exclusion from the egg, they took to wing, and ascended the branches of the tree, with surprising ease and firmness. They were fed another day after, on the same tree, and roosted close together in a row on a small twig, the parents just above them. The next morning they flew across the street, and betook themselves to a fine peach-orchard several hundred yards from my lodging. Never had HUBER watched the operations of his bees with more intentness than I had employed on this occasion, and I bade them adieu at last with great regret.

The principal food of this species consists of small black caterpillars, which that season infested all the poplars in the street. They searched for them in the manner of the Red-eyed Vireo and Blue-eyed Yellow Warbler, moving sidewise along the twigs, like the latter, now and then balancing themselves on the wing opposite their prey, and snapping it in the manner of the *Muscicapa Ruticilla*, sometimes alighting sidewise on the tree, seldom sallying forth in pursuit of insects more than a few yards, and always preferring to remain among the branches. I never saw either of the old birds disgorge pellets, as I have seen Pewees do.

I observed that they now and then stood in a stiffened attitude, balancing their body from side to side on the joint of the tarsus and toes, as on a hinge, but could not discover the import of this singular action. During the love days of the pair mentioned above, the male would spread its little wings and tail, and strut in short circles round the female, pouring out a low warble so sweet and mellow that I can compare it only to the sounds of a good musical box. The female received these attentions without coyness, and I have often thought that these birds had been attached to each other before that season.

No name could have been imposed upon this species with more propriety than that of the Warbling Vireo. The male sings from morning to night, so sweetly, so tenderly, with so much mellowness and softness of tone, and yet with notes so low, that one might think he sings only for his beloved, without the least desire to attract the attention of rivals. In this he differs greatly from most other birds. Even its chiding notes—*tschĕ*, *tschĕ*, were low and unobtruding. The nestlings uttered a lisping sound, not unlike that of a young mouse. The only time I saw the old birds ruffled, was on discovering a brown lizard ascending their tree. They attacked it courageous-

ly, indeed furiously, and although I did not see them strike it, compelled it to leave the place.

The flight of the Warbling Vireo is performed by gentle glidings, and seldom extends to a greater length than a hundred yards at a time. I never saw it on the ground.

It was never observed by me in Louisiana or Kentucky, nor does it pass along the maritime districts of Georgia or the Carolinas; but from Virginia to Maine it is not uncommon, although I saw none farther north. It arrives in the Jerseys and Pennsylvania about the first of May, some years perhaps a little earlier, and proceeds farther east as the season advances. I do not think that it raises more than one brood each season, although I have observed it as late as the 15th of October in the Middle Districts, where I believe the greater number of these birds spend the summer. Not one could I see during the winter in the Floridas, where, however, the White-eyed and Red-eyed Vireos were frequently heard in full song.

It is very surprising that this species, which is found on the Columbia river, and in our Middle and Eastern Districts, enters, traverses, and leaves the United States in a manner unknown to any one. When on my way to the Texas, I met with most of our small birds, but with none of this species.

WARBLING FLYCATCHER, *Muscicapa melodia*, Wils. Amer. Orn., vol. v. p. 85.
VIREO GILVUS, Bonap. Syn., p. 70.
WARBLING VIREO, Nutt. Man., vol. i. p. 309.
WARBLING FLYCATCHER or VIREO, *Vireo gilvus*, Aud. Orn. Biog., vol. ii. p. 114; vol. v. p. 433.

Upper parts light greenish-olive, the head and hind neck greyish-brown; a white band over the eye; wings and tail brown, quills edged with green; lower parts dull yellowish-white, the sides tinged with yellow.

Male, 5¼, 8½.

From Texas to Maine, and in the interior to Columbia river. Abundant. Migratory.

THE SWAMP MAGNOLIA.

MAGNOLIA GLAUCA, *Willd.*, Sp. Pl., vol. ii. p. 1256. *Pursh*, Flor. Amer. Sept., vol. ii. p. 381. *Mich.*, Arbr. Forest. de l'Amer. Septentr., vol. iii. p. 78, pl. 2.—POLYANDRIA POLYGYNIA, *Linn.*—MAGNOLIÆ, *Juss.*

The *swamp magnolia* is abundant in all marshy places from Louisiana to Connecticut, growing in groves in and around the swamps. It seldom exceeds twenty feet in height, and is more usually eight or ten. The flowers

Bartrams Vireo or Greenlet?

Male.

Ipomea.

Drawn from Nature by J.J.Audubon, F.R.S.F.L.S. Lith.ª Printed & Col.ª by J. T. Bowen, Phila.ª

have an agreeable odour, but are of short duration, although the tree continues blooming for several months. It is not unfrequent to find it, in the Southern States, in flower during autumn. The species is characterized by its ovate leaves, which are glaucous beneath, and its obovate petals, narrowed at the base. It bears different names in the different States, such as *swamp laurel, swamp sassafras, sweet bay, white bay*, &c.

BARTRAM'S VIREO, OR GREENLET.

VIREO BARTRAMI, *Swains.*

PLATE CCXLII.—MALE.

This species has been named as above by my friend WILLIAM SWAINSON, Esq., from whom I received a specimen procured in Mexico, which corresponds in every respect with those which I have myself procured in the States of New Jersey and Kentucky. I consider it as a species generally overlooked in America, confounded with, or mistaken for, the Red-eyed Vireo; but I have not been able to ascertain its range with us, although I strongly suspect that it proceeds very far northward as well as westward.

A remarkable difference between this and the Red-eyed Vireo is, that it rarely if ever ascends even moderately tall trees, as the latter is wont to do, but almost constantly remains in low and close thickets, in the manner of the White-eyed Vireo, of the petulance and activity of which it also possesses a portion, as well as its disregard of the approach of man, or indeed of any other intruder. I have not unfrequently remained a considerable time, within a few yards of one, listening with delight to its sweetly varied and plaintive notes, which it poured forth just as if no enemy were near, and now and then peeped at me as if it wished that we were better acquainted.

The nest of this bird is seldom placed at a greater height from the ground than four feet. In two instances I have found it attached to two strong blades of coarse grass growing from beneath a thicket of brambles, not above two feet from the earth. It is truly pensile, about three inches deep, and formed wholly of slender grasses and fibrous roots. The eggs are usually pure white, without any spots or dots. I have not been able to ascertain if it breeds twice in the season, although I suspect it does.

There is a greater difference as to colour between the sexes of this species than between those of the Red-eyed. The female is generally much less pure in its tints, while the males have usually much more of a yellowish tint on their upper and under plumage than is observed in the same sex of the other species.

VIREO BARTRAMII, Swains., BARTRAM'S GREENLET, Swains. and Rich. F. Bor. Amer., vol. ii. p. 235.

BARTRAM'S VIREO, *Vireo Bartramii*, Aud. Orn. Biog., vol. v. p. 296.

Adult Male.

Bill of moderate length, strong, rather broader than high at the base, compressed toward the end; upper mandible with the dorsal line descending and slightly convex, the tip very narrow, acute, declinate, the ridge very narrow, the sides a little convex, the edges sharp, overlapping, with a slight notch close to the tip; lower mandible with the angle of moderate length and rather narrowed, the dorsal line ascending and slightly convex, the back narrow, the sides convex, the edges inclinate, the tip acute and ascending. Nostrils basal, oblong, operculate.

Head rather large, ovate; neck short; body rather stout. Feet of ordinary length; tarsus compressed, with seven anterior broad scutella, edged behind; toes slender, the first strong, the second much shorter than the fourth; claws rather stout, much curved, compressed, laterally grooved, acute.

Plumage soft and blended. Wings of moderate length, the first quill a twelfth and a half shorter than the fifth, three-twelfths shorter than the second, which is equal to the third, and exceeds the fourth only by a quarter of a twelfth. Tail rather long, nearly even, the lateral and middle feathers equal, and one-twelfth shorter than the longest.

Bill brown above, pale bluish-grey beneath. Feet bluish-grey. The general colour of the plumage above is light yellowish-olive, the crown of the head deep grey, bordered on each side by a line of blackish, below which is a line of yellowish-white passing from the nostril over the eye, the loral space dusky. Quills brown, yellowish-olive on the outer margin, whitish on the inner. Tail wood-brown, margined with paler. The lower parts are white, the breast tinged with pale yellow, the throat and sides with grey.

Length to end of tail $4\frac{7}{8}$ inches; extent of wings $7\frac{3}{4}$; bill along the ridge $\frac{6}{12}$, along the edge of lower mandible $\frac{9}{12}$; wing from flexure $2\frac{9}{12}$; tail $2\frac{1}{12}$; tarsus $\frac{8}{12}$; hind toe $\frac{3}{12}$, its claw $\frac{2}{12}$; middle toe $\frac{5}{12}$, its claw $\frac{3}{12}$.

This species is almost exactly similar to *Vireo olivaceus* in colour, but is considerably smaller, and differs in having the wings shorter, with the first quill considerably shorter than the fifth, whereas in that species it is always much longer, generally exceeding even the fourth.

Red-eyed Vireo or Greenlet

Male

Honey locust

Drawn from Nature by J.J.Audubon.F.R.S.F.L.S. Lith.d Printed & Col.d by J. T. Bowen, Phila.a

THE RED-EYED VIREO, OR GREENLET.

VIREO OLIVACEUS, *Linn.*

PLATE CCXLIII.—MALE.

One of the principal differences between the habits of this and some other species, which are now called Vireos, and the Flycatchers, is, that the former procure their food principally by moving about, and along the branches or the twigs of the trees, by light hops, alternately changing sides, reaching and securing their prey by an elastic extension of the legs and neck, without the continual snapping or clicking of the bill so common among the Muscicapæ on such occasions, and that they seldom make sorties on the wing to any distance, for the purpose of seizing the insects on which they usually feed. This habit is retained until autumn, when, insects being scarce, the Vireo sallies forth to a short distance in pursuit of them, as they may chance to pass near the tree on which, in the silent mood of a Flycatcher, it stands erect, using the watchful side-glances peculiar to its tribe, as it anxiously expects the passage of its prey. Another difference is, that Vireos are generally more musical, lively and gay, than Flycatchers, so that their society is more welcome to man; and, as if fully conscious of their superiority in this respect, and knowing that they commit no depredations upon his fruit or bees, calculated to arouse his anger, they often suffer him to approach with a carelessness that evidently proves the simplicity of their nature. The third great difference between the Vireos and Flycatchers is, that the former seldom, if ever, go down from the trees to the water, for the purpose of drinking; while the latter are often seen gliding closely over rivers and pools, from which they sip their drink. The Vireos quench their thirst with the drops of dew or rain that adhere to the leaves or twigs. I might add, that the quivering motions of the wings in Flycatchers when alighted, is not exhibited by the Vireos, at least has never been observed by me. On the other hand, the affinity existing between the Vireos and Muscicapæ is indicated by their being equally possessed of the power of regurgitation.

The Red-eyed Vireo is an inhabitant of the whole of our forests. Now you hear its sweet, unaffected, musical, loud and free warble, from the inner top branches of a tall tree, for hours at a time, and even during the hottest part of the day; again, you may count each note that it utters, the little

vocalist resting as it were to enjoy the sounds of its own music; next moment all seems hurry and bustle;—it raises its voice, and chants on with great volubility, so loudly that one might think the little creature intent on drowning all other sounds. The darker the woods, the more cloudy the day, the more unremitting are its exertions. It is one of the earliest singers in spring, and among the latest in autumn. In the south-eastern parts of East Florida, where many spend the winter, I have heard its notes and those of the White-eyed Vireo, even at that season. In South Carolina, in the neighbourhood of Charleston, I have heard and seen it early in the month of February, when scarce a leaf was yet expanded. It is not seen in Louisiana until the beginning of March, and I am inclined to think that perhaps an equal number of these birds come to us from the West India Islands or from Mexico.

Few birds seem to enjoy life more than this Vireo, for at almost every short cessation of its song, it is seen making a movement or two up or along a branch, searching with extreme diligence for food, peeping cautiously under the leaves, and examining each bud or blossom with a care peculiarly its own. It may be seen flying from one tree to another with indefatigable industry, and this not only from morning to night, but during the whole time of its stay with us.

So abundant is this bird, and so prodigal of its song, that any one paying the least attention is sure to hear it either from the trees which embellish the streets of the villages and cities, or the gardens and woods. The principal notes resemble the syllables *pewee, pea, sho-re, sheire, chew-ree piwit.* They are, as I have said, clear, loud, and melodious.

The flight of this bird is altogether performed in a gliding manner, and when it is engaged in pursuit of a rival or an enemy, it passes through the woods with remarkable swiftness. It is an affectionate parent, generally leading about its young, particularly its second brood; for it often breeds twice in the year, even in the State of Massachusetts, or far up on the Mississippi. On such occasions, the parents proceed through the woods with more care, and on the least appearance of danger utter a querulous note, the meaning of which is so well understood by the little family, that they seldom fail to hide or become mute in an instant. The young are fed for several weeks after they leave the nest, and, I believe, migrate with the old ones, for I have frequently seen them on the move until dusk, and going to roost together at nightfall. I do not recollect ever having seen one of them on the ground.

Like the true Flycatchers, these birds eject small pellets formed of the hard crusts of the abdomen, legs, and other parts of insects. I have but very

seldom seen them feeding on berries of any kind, although in Louisiana I have observed them pecking at ripe figs.

The nest of the Red-eyed Vireo is small, and extremely neat. It is generally suspended, at a moderate height, from the slender twigs forming the fork at the end of a branch. I have found some situated so low that I could easily look into them, while others were hung thirty feet over head. Dogwood trees seem to be preferred by them, although I have found the nests on oaks, beeches, and sugar-maples, as well as on tall grasses. The male bird frequently leads you to the discovery of the nest, by its great anxiety about the safety of its mate. The outer parts are firmly attached to the twigs, the fibres being wrapped around them in various directions. The materials are usually the bark of the grape-vine, the silk of large cocoons, some lichens, particles of hornets' or wasps' nests, and decayed worm-eaten leaves. The lining, which is beautifully disposed, consists of fibrous roots, grasses, and now and then the hair of various quadrupeds, especially the grey squirrel and racoon. The nest, however, differs greatly in different latitudes; for, in the Middle States, they often use the leaves of the pine, cedar, and hemlock, which they glue together apparently with their saliva. The eggs are from four to six, pure white, sparingly spotted at the larger end with reddish-brown or blackish dots. They are laid in Pennsylvania about the first of June, and later in more northern parts.

The eyes of the young are of an umber colour, and do not become red until the following spring. Those of some shot in the Floridas in January, had not changed their colour. In February I shot two, each of which had a red and a brown eye.

This bird, as well as the White-eyed Vireo, is often called to nurse the young of the Cow-bird, which deposits its egg in the nests of either species, assured that it will be properly treated. No difference exists in the plumage, or even size of the sexes.

It appears that an individual of this species was procured at Cumberland House, lat. 54° N., and a description of it is given in the Fauna Boreali-Americana, but without a single word as to its times of appearance and departure. My friend Dr. THOMAS M. BREWER has sent me the following curious notice respecting this species. "There is connected with the egg of this bird which I sent you, a fact of some interest, both as displaying its kind nature, and as establishing a fact in natural history. Mr. ORD says, in his paper in LOUDON'S Magazine, that 'it is probable, that if the Cow-bird deposits her egg in a nest wherein the owner has not yet begun to lay, the nest is either abandoned forthwith, or the egg of the intruder is buried by the addition of fresh materials, so that it becomes abortive!' Let us see if this be so. On the 10th of June, 1836, I found the nest of the Red-eyed Vireo nearly

finished. It was situated on the extremity of a branch of an oak, at the height of about 30 feet. Being in that situation quite inaccessible, I fastened a cord to the end of the limb, and by bringing it closer to the body of the tree and securing it in that situation, I put it within reach. Although by this means the nest was nearly inverted, the bird did not forsake it, but built up the under side, and adapted it to its new situation. About a fortnight after, I found in the nest two eggs of the Cow Troopial advanced in incubation, although there were none of the eggs of the owner of the nest. On the 30th of the same month, the egg of the Vireo was found to have been added. This had been sat upon a few days ; and those of the Troopial were nearly ready to be hatched. This fact is one of the most satisfactory kind, for not merely one, but actually *two* eggs of the Cow Blackbird were deposited, and instead of being forsaken were incubated for at least a week before the bird was ready to lay any of her eggs ; and although repeatedly disturbed, first by having her empty and unfinished nest nearly inverted, then by having the eggs of the Cow-bird removed and afterwards replaced in order to put their identity beyond doubt, and again by having her own eggs removed, she still clung to her adopted younglings with unexampled fidelity."

RED-EYED FLYCATCHER, *Muscicapa olivacea*, Wils. Amer. Orn., vol. ii. p. 55.
VIREO OLIVACEUS, Bonap. Syn., p. 71.
VIREO OLIVACEUS, *Red-eyed Greenlet*, Swains. and Rich. F. Bor. Amer., vol. ii. p. 233.
RED-EYED VIREO *Vireo olivaceus*, Aud. Orn. Biog., vol. ii. p. 287 ; vol. v. p. 430.

Adult Male.

Bill of moderate length, strong, depressed at the base, compressed towards the end, somewhat ascending. Upper mandible with the dorsal line slightly convex, the sides convex, the edges sharp and notched towards the end, the tip acute and suddenly deflected ; lower mandible with the dorsal line also slightly convex, the back rounded, the edges sharp and inflected, the tip acute. Nostrils basal, lateral, oblong. Head rather large, neck short, body rather robust. Feet of ordinary length ; tarsus compressed, anteriorly scutellate, sharp behind ; toes slender, free ; claws arched, compressed, acute.

Plumage soft and blended. Wings rather long, the second and third primaries longest ; tail of ordinary length, slightly emarginate. Bristles at the base of the bill short.

Bill brown above, pale bluish-grey beneath. Iris red. Feet bluish-grey. The general colour of the plumage above is light yellowish-olive, the crown of the head deep-grey, bordered on each side by a line of blackish, below which is a line of greyish-white passing from the nostril over the eye.

Quills dusky, olivaceous on the outer margin, white on the inner. Tail wood-brown. The lower parts are white, the breast and sides tinged with pale yellow.

Length 5½ inches, extent of wings 9; bill along the back nearly ½, along the edge 8 twelfths; tarsus 8 twelfths.

The female resembles the male, but is of a duller white beneath.

From Texas to Nova Scotia, and through the interior. Accidental in the Fur Countries. Abundant. Migratory.

Honey-Locust.

Gleditschia triacanthos, *Willd.*, Sp. Pl., vol. iv. p. 1097. *Pursh, Flor.* Amer Sept. vol. i. p. 221.—Polygamia Dicecia, *Linn.*—Leguminosæ, *Juss.*

FAMILY XXI.—PIPRINÆ. MANAKINS.

Bill short, stout, straight, depressed, being much broader than high at the base, with the dorsal line arched, the ridge narrow, the sides sloping, the gap-line straightish or slightly arched, the notches rather large, the tip very small and declinate. Head rather large, broadly ovate; neck short; body compact. Tarsus of moderate length, compressed, with seven anterior scutella; toes small, the hind one not much stouter, the lateral equal. Claws moderate, arched, compressed, acute. Plumage soft, full, and blended. Wings of moderate length, broad, and rounded. Tail short or of moderate length, generally rounded. Roof of upper mandible concave, with a prominent median line; tongue triangular, horny, thin-edged, rather obtuse, bristly at the end; œsophagus wide, without dilatation; stomach rather small, roundish, moderately muscular, with a dense rugous epithelium; intestine short, of moderate width; cœca very small.

GENUS I.—ICTERIA *Vieill.* CHAT.

Bill of moderate length, stout, slightly arched, broad at the base, compressed toward the end; upper mandible with the sides convex, the edges sharp, destitute of notch, the tip acute and a little declinate; lower mandible with the dorsal line nearly straight, the edge-line slightly arched and inflected. Nostrils roundish, half covered by a vaulted membrane. General form rather robust; head ovate, neck short, body moderate. Legs of moderate length, slender; tarsus compressed, anteriorly covered with eight scutella, of which the upper are blended; two lateral toes nearly equal, the hind one not much stouter. Claws moderate, arch much compressed, laterally grooved, very acute. Plumage soft and blended. Bristles very small. Wings of moderate length, rounded, third and fourth primaries longest, second little shorter, first longer than sixth. Tail rather long, rounded.

THE YELLOW-BREASTED CHAT.

ICTERIA VIRIDIS, *Gmel.*

PLATE CCXLIV.—MALES, FEMALE AND NEST.

This singular bird is extremely plentiful in Louisiana, Georgia, and the Carolinas, during spring and summer. It arrives in the first of those States as soon as the blossoms of the dog-wood mark the return of the vernal season. Many continue their migrations eastward as far as Connecticut, but beyond this the species is seldom if ever seen. I have found it equally abundant in Kentucky, particularly in the barrens of that State; and it ascends the Ohio, spreading over the country, and extending as far as the borders of Lake Erie in Pennsylvania. It never enters what is properly called the woods, preferring at all periods of its short stay with us, the large

Yellow breasted Chat

1 2 3 Male 4 Female

Sweet briar

Drawn from Nature by J.J.Audubon.F.R.S.F.L.S. Lith.d Printed & Col.d by J. T. Bowen, Phila.a

tangled and almost impenetrable patches of briars, sumach, prickly ash, and different species of smilax, wherever a rivulet or a pool may be found.

As in other migratory species, the males precede the females several days. As soon as they have arrived, they give free vent to their song at all hours of the day, renewing it at night when the weather is calm, and the moon shines brightly, seeming intent on attracting the females, by repeating in many varied tones the ardency of their passion. Sometimes the sounds are scarcely louder than a whisper, now they acquire strength, deep guttural notes roll in slow succession as if produced by the emotion of surprise, then others clear and sprightly glide after each other, until suddenly, as if the bird had become confused, the voice becomes a hollow bass. The performer all the while looks as if he were in the humour of scolding, and moves from twig to twig among the thickets with so much activity and in so many directions, that the notes reach the ear as it were from opposite places at the same moment. Now the bird mounts in the air in various attitudes, with its legs and feet hanging, while it continues its song and jerks its body with great vehemence, performing the strangest and most whimsical gesticulations; the next moment it returns to the bush. If you imitate its song, it follows your steps with caution, and responds to each of your calls, now and then peeping at you for a moment, the next quite out of sight. Should you have a dog, which will enter its briary retreat, it will skip about him, scold him, and frequently perch, or rise on wing above the thicket, so that you may easily shoot it.

The arrival of the females is marked by the redoubled exertions of the males, who now sing as if delirious with the pleasurable sensations they experience. Before ten days have elapsed, the pairs begin to construct their nest, which is placed in any sort of bush or briar, seldom more than six feet from the ground, and frequently not above two or three. It is large, and composed externally of dry leaves, small sticks, strips of vine bark and grasses, the interior being formed of fibrous roots and horse-hair. The eggs are four or five, of a light flesh colour, spotted with reddish-brown. In Louisiana and the Carolinas, these birds have two broods in the season; but in Pennsylvania, where they seldom lay before the 20th of May, they have only one brood. The eggs are hatched in twelve days. The male is seldom heard to sing after the breeding season, and they all depart from the Union by the middle of September. Their eggs and young are frequently destroyed by snakes, and a species of insect that feeds on carrion, and burrows in the ground under night. The young resemble the females, and do not acquire the richness of the spring plumage while in the Union.

The food of the Yellow-breasted Chat consists of coleopterous insects and

small fruits. They are especially fond of the wild strawberries so abundant in the Kentucky barrens.

When migrating they move from bush to bush by day, and frequently continue their march by night, especially should the moon be out and the weather pleasant. Their flight is short and irregular at all times. When alighted, they frequently jerk their tail, squat, and spring on their legs, and are always in a state of great activity. I never observed them chasing insects on the wing.

I have presented you with several figures of this singular species, to shew you their positions when on the wing performing their antics in the love season as well as when alighted. The wild rose branch with the nest, was cut out of a thicket for the purpose which you see accomplished.

YELLOW-BREASTED CHAT, *Pipra polyglotta*, Wils. Amer. Orn., vol. i. p. 90.
ICTERIA VIRIDIS, Bonap. Syn., p. 69.
YELLOW-BREASTED CHAT, *Icteria viridis*, Nutt. Man., vol. i. p. 299.
[illegible] CHAT, *Icteria viridis*, Aud. Orn. Biog., vol. ii. p. 223; vol. v. p. 433.

Adult Male.

Bill of moderate length, strong, slightly arched, broad at the base, compressed towards the end; upper mandible with the sides convex, the edges acute, destitute of notch, the tip acute, and a little declinate; lower mandible with the dorsal line nearly straight, the edge line slightly arched and inflected. Nostrils rounded, half covered by a vaulted membrane. The form is rather robust. Legs of moderate length, slender; tarsus compressed, anteriorly scutellate, sharp behind; two lateral toes nearly equal, the hind one not much stouter; claws small, compressed, acute.

Plumage blended. Wings of moderate length, rounded; third and fourth primaries longest, second almost equal, first a little shorter. Tail longish, rounded. Feathers of the throat and breast with a silky gloss.

Bill black, the base of lower mandible blue. Iris hazel. Feet greyish-blue. The general colour of the upper parts is deep olive-green; the inner webs of the tail-feathers and quills, and the ends of the latter, dusky-brown. A line over the eye, a small streak under it, and a spot at the base of the lower mandible, white. Lore black. Throat and breast bright yellow, abdomen and under tail-coverts white.

Length 7 inches; extent of wings 9; bill along the ridge $\frac{7}{12}$, along the edge $\frac{9}{12}$; tarsus $\frac{1}{12}$.

Adult Female.

The female scarcely differs from the male in any perceptible degree, and is of the same size.

From Texas to Connecticut. Inland as far as Kentucky. Abundant. Migratory.

In an adult male preserved in spirits, the roof of the mouth is nearly flat behind, anteriorly arched and decurved, with a prominent median ridge. The posterior aperture of the nares is linear, 5 twelfths long, with the margins papillate. The tongue is 7 twelfths long, deeply emarginate and papillate at the base, channelled above, tapering to a horny point, which is rather blunt, but terminates in a number of slender bristles, of which there are also some on its edges. The œsophagus is 2½ inches long, funnel-shaped at the commencement, then 3 twelfths in width, and so continuing. The stomach is rather small, considerably compressed, roundish, 7 twelfths long, 6 twelfths broad; its muscles moderate and distinct, its tendons rather large; its cuticular lining thin, tough, brownish-red, with six rugæ on one side, and four on the other. Its contents are remains of insects. The intestine is 6¾ inches long, 1½ twelfths in width; the cœca are extremely minute, being only ¼ twelfth in length.

The trachea is 1 inch 7 twelfths long, considerably flattened, its breadth 1 twelfth. The rings are 70 in number, and 2 dimidiate rings. The bronchi are short, of 10 half rings. There are four pairs of inferior laryngeal muscles, similar to those of the Shrikes.

The Sweet Briar.

Rosa rubiginosa ?—Icosandria Polygynia, *Linn.*—Rosaceæ, *Juss.*

The *sweet briar* is very generally distributed in the United States. I have found it from Louisiana to the extremities of Nova Scotia along the Atlantic coast, and as far in the interior as I have travelled. The delicious odour of its leaves never fails to gratify the person who brushes through patches of it, while the delicate tints of its flowers remind one of the loveliness of female beauty in its purest and most blooming state. Truly a "sweet home" must be the nest that is placed in an eglantine bower, and happy must be the bird that in the midst of fragrance is cheered by the warble of her ever loving mate.

FAMILY XXII.—AMPELINÆ. CHATTERERS.

Bill short, depressed, rather weak, triangular when viewed from above, compressed at the end, its upper outline arched, the gap-line nearly straight, the notches very small, the tip very small and declinate. Nostrils elliptical, partially concealed by reversed bristly feathers. Head ovate; neck short; body moderate or full. Feet short; tarsus short, rather stout, compressed; toes rather small. Claws rather long, arched, much compressed, acute. Plumage generally blended and glossy. Wings of moderate length, broad. Tail short or of moderate length. Roof of upper mandible rather concave, with three longitudinal ridges; tongue horny, deeply slit; œsophagus very wide, dilated about the middle; stomach small, elliptical, moderately muscular; intestine of moderate length and very wide; cœca very small. Trachea simple, with four pairs of very small inferior laryngeal muscles.

Genus I.—BOMBYCILLA, *Briss.* WAXWING.

Bill short, rather stout, straightish, broader than high at the base, compressed towards the end; upper mandible with its dorsal line convex and declinate towards the tip; which is deflected, narrow, and rather acute, its sides convex, the edges sharp and overlapping, the notches distinct; lower mandible with the angle short and wide, the dorsal line convex and ascending, the edges sharp and inflected, the tip very small, acute, ascending, with a small sinus behind; gap line nearly straight. Nostrils oval, partially concealed by the reversed stiffish feathers. Head of ordinary size, ovate; neck short; body full. Feet rather short; tarsus short, rather stout, compressed, with six scutella; toes of moderate size, first stout, broad beneath, outer slightly adherent at the base; inner a little shorter. Claws rather long, arched, much compressed, very acute. Plumage blended, very soft, somewhat silky, but with little gloss; head tufted; no bristles. Wings rather long, broad, and pointed, the first quill longest. Tail of moderate length, even. This genus is remarkable for the oblong bright red horny appendages to the tips of the wings and tail-feathers, which, however, are not seen in all

Black throated Wax-wing.
or Bohemian Chatterer.

1. Male. 2. Female

Canadian Service Tree.

Drawn from Nature by J.J. Audubon F.R.S.F.L.S.

Lith.d Printed & Col.d by J. T. Bowen, Philad.a

the species. Roof of upper mandible slightly concave, with three ridges; tongue triangular, concave, horny, deep slit, with two slender points; œsophagus very wide, much dilated about the middle; stomach rather small, elliptical, muscular; intestine short and extremely wide; cœca very small.

BLACK-THROATED WAXWING, OR BOHEMIAN CHATTERER.

BOMBYCILLA GARRULA, *Vieill.*

PLATE CCXLV.—MALE AND FEMALE.

The first intimations of the occurrence of this beautiful bird in North America, were made by Mr. DRUMMOND and Dr. RICHARDSON, by the former of whom it was found in 1826, near the sources of the Athabasca, or Elk river, in the spring, and by the latter, in the same season, at Great Bear Lake, in latitude 50°. Dr. RICHARDSON states, in the Fauna Boreali-Americana, that "specimens procured at the former place, and transmitted to England, by the servants of the Hudson's Bay Company, were communicated by Mr. LEADBEATER to the Prince of MUSIGNANO, who had introduced the species into his great work on the Birds of the United States." "In its autumn migration southwards," he continues, "this bird must cross the territory of the United States, if it does not actually winter within it; but I have not heard of its having been hitherto seen in America to the southward of the fifty-fifth parallel of latitude. The mountainous nature of the country skirting the Northern Pacific Ocean being congenial to the habits of this species, it is probably more generally diffused in New Caledonia and the Russian American Territories, than to the eastward of the Rocky Mountain chain. It appears in flocks at Great Bear Lake about the 24th of May, when the spring thaw has exposed the berries of the alpine arbutus, marsh vaccinium, &c., that have been frozen and covered during winter. It stays only for a few days, and none of the Indians of that quarter with whom I conversed had seen its nests; but I have reason to believe, that it retires in the breeding season to the rugged and secluded mountain-limestone districts, in the sixty-seventh and sixty-eighth parallels, where it feeds on the fruit of

the common juniper, which abounds in those places." In a note, he further states:—"I observed a large flock, consisting of at least three or four hundred individuals, on the banks of the Saskatchewan at Carlton House, early in May, 1827. They alighted in a grove of poplars, settling all on one or two trees, and making a loud twittering noise. They stayed only about one hour in the morning, and were too shy to allow me to approach within gunshot."

I am informed by Mr. TOWNSEND, who has spent about four years in the Columbia river district and on the Rocky Mountains, that he did not observe there a single bird of this species. In the autumn of 1832, whilst rambling near Boston, my sons saw a pair, which they pursued more than an hour, but without success. The most southern locality in which I have known it to be procured, is the neighbourhood of Philadelphia, where, as well as on Long Island, several were shot in 1830 and 1832. The specimens from which I made the figures of the male and female represented in the plate, were given to me by my friend THOMAS M'CULLOCH of Pictou, in Nova Scotia, who procured several others in the winter of 1834. The following account of the affection displayed by one towards its companion, with which he has also favoured me, will be found highly interesting.

"During the winter of 1834, many species of the northern birds were more than usually abundant in the province of Nova Scotia, being driven, no doubt, from their customary places of resort by the cold, which was very intense at the commencement of the season. Large flocks of the *Loxia Enucleator* appeared in every part of the country, while the *Fringilla Linaria*, of which we had not seen a single specimen for upwards of two years, could be shot at almost any hour of the day, in the streets of Pictou; and we were often told of birds being seen, which from the description we could not recognise as belonging to any species with which we were already acquainted. The first day of the year having proved uncommonly mild, I went out, accompanied by my father, with the expectation of obtaining something new for our collection of birds. We had scarcely left our own door when we observed a small flock alight in a thicket of evergreens a short distance from where we stood. Thinking they were Pine Grosbeaks, we directed the man who was with us to push on and obtain a shot. He did so, and we just arrived in time to pick up a pair of birds which he had killed. One glance was sufficient to show us that they were not what we had supposed, but a species we had never previously seen or heard of as visiting that portion of the Continent. You, my dear sir, have often enjoyed such moments, and therefore can easily conceive the intense delight with which we surveyed our prize, and how anxiously we watched the progress of the remainder, as they flew to an adjoining thicket, where one immediately disappeared, while the other took its station on the top of a spruce, from

which its simple *tze tze tze* was uttered with the greatest vehemence, as if calling on its companions to hasten from the danger which it had recently escaped. Seeing the bird so very watchful, we made a small circuit with the view of diverting its attention, and at the same time of looking for the one by which it was accompanied, as I conceived it to be severely wounded, from the apparent difficulty of its flight. After a careful examination of the bush we at length observed it upon a low twig, and from its inattention to the calls of its mate, and the cowering position in which it sat, I concluded that it was unable to make another attempt to escape. Giving it an occasional glance, we turned towards the other, which still retained its former station on the top of the spruce, though its uneasiness seemed to increase at every step. While the man was cautiously working his way through the thick alder, in order to get within shot, I carefully examined the bird, which certainly presented a very interesting object. It stood almost as upright as the top on which it was perched, its height being much increased by its long and graceful crest being quite erect, while at the same time its wings were kept in a constant jerking motion, as if in readiness to remove at a moment's notice. Independent of the mere beauty of the bird, there was something deeply interesting in the anxiety for the safety of its mate, so touchingly displayed by the force and rapidity of its simple but affectionate warning. The motion of the alders frightened the bird, and I had the mortification of seeing it rise in the air, as if about to commence a lofty and long-continued flight. Unwilling to give it up, I watched its progress with longing eyes, but at last, when about turning away in despair, it suddenly wheeled about, dashed by with great velocity, gently brushed its companion, and thus by dispelling its stupor induced it to make another effort to escape the danger which threatened its destruction. Though surprised and delighted with this singular display of fidelity and affection, I felt not a little disappointed to see them both about to elude our grasp. The weakness of the wounded bird, however, soon induced it to seek concealment in another thicket, while the other, still faithful to a friend in distress, alighted as formerly on a spruce top, whence it could both see and warn it of approaching danger. As we again drew near, its anxiety seemed to be redoubled, while its notes were uttered with corresponding quickness and energy; but before we could get within reach, it again launched into the air, and made off, calling on the other to follow with all possible speed. After flying for some time, and finding itself unattended, it again returned and alighted on a top near the one it had just left. The opportunity was too good to be lost, and notwithstanding our admiration of this additional instance of its fidelity, we shot it down, affection for its species being the occasion of its ruin. These, my dear sir, are all the observations I was enabled to make upon these interesting

birds, during the short and only time they ever came under my notice. From the man I learned that before the first shot they were quite mute, and unsuspicious of danger. Some days after these were obtained, a single one was observed by my father repeatedly to come and sit for a considerable time on some willows at the bottom of our garden, but not being accustomed to the use of a gun, he did not procure it. Whether this was the wounded one or not, we could not tell, but from the affection of the bird for its kind, we thought that possibly it might be that one in search of its lost companions."

BOMBYCILLA GARRULA, *European Chatterer*, Swains. and Rich. F. Bor. Amer., vol. ii. p. 237.

BOMBYCILLA GARRULA, Bonap. Syn., p. 438.

BOMBYCILLA GARRULA, Bonap. Amer. Orn., vol. iii. pl. 16.

EUROPEAN WAXEN CHATTERER, Nutt. Man., vol. ii. p. 579.

BOHEMIAN CHATTERER, *Bombycilla garrula*, Aud. Orn. Biog., vol. iv. p. 462.

General colour light greyish-brown, passing behind into ash-grey, before into brownish-orange, of which colour are the forehead, a patch on each side of the throat near the base of the bill, and the feathers under the tail; a band of deep black from the nasal membrane over the eye to the top of the head, where it is concealed by the crest; feathers at the base of the lower mandible and a narrow streak below the eye, white; upper part of throat deep black; feathers of the wings greyish-black; primary coverts largely tipped with white; primary quills with a bright yellow, secondary with a white elongated spot at the end of the outer web, and tipped with oblong waxred appendages; tail light grey at the base, gradually shaded into deep black, with a broad band of bright yellow. Female similar to the male, but somewhat smaller. Oblong waxen appendages to the secondary quills, varying from seven to three, sometimes wanting, especially in young birds; males with the shafts of the tail-feathers very slightly enlarged at the end, and bright red. Carefully compared with European specimens.

Male, 9¾, 16¼.

From New York eastward and northward, to the Fur Countries.

Cedar bird, or Cedar Wax-wing.

1 Male 2 Female.

Red Cedar.

Drawn from Nature by J.J. Audubon F.R.S.F.L.S. Lith.ª Printed & Col.ª by J. T. Bowen, Phila.ª

CEDAR WAXWING, OR CEDAR-BIRD.

BOMBYCILLA CAROLINENSIS, *Briss.*

PLATE CCXLVI.—MALE AND FEMALE.

Louisiana affords abundance of food and pleasant weather to this species, for nearly four months of the year, as the Cedar-birds reach that State about the beginning of November, and retire towards the Middle Districts in the beginning of March. The holly, the vines, the persimon, the pride-of-china, and various other trees, supply them with plenty of berries and fruits, on which they fatten, and become so tender and juicy as to be sought by every epicure for the table. I have known an instance of a basketful of these little birds having been forwarded to New Orleans as a Christmas present. The donor, however, was disappointed in his desire to please his friend in that city, for it was afterwards discovered that the steward of the steamer, in which they were shipped, made pies of them for the benefit of the passengers.

The appetite of the Cedar-bird is of so extraordinary a nature as to prompt it to devour every fruit or berry that comes in its way. In this manner they gorge themselves to such excess as sometimes to be unable to fly, and suffer themselves to be taken by the hand. Indeed I have seen some which, although wounded and confined in a cage, have eaten of apples until suffocation deprived them of life in the course of a few days. When opened afterwards, they were found to be gorged to the mouth.

It is a beautiful bird, but without any song, even during the breeding season, having only a note which it uses for the purpose of calling or rallying others of its species. This note is feeble, and as it were lisping, yet perfectly effectual, for when uttered by one in a flock within hearing of another party, the latter usually check their flight, and alight pellmell on the same tree.

Their flight is easy, continued, and often performed at a considerable height. The birds move in close bodies, sometimes amounting to large flocks, making various circumvolutions before they alight, and then coming down in such numbers together as to seem to be touching each other. At this particular moment, or while performing their evolutions, some dozens may be killed at a single shot; but if this opportunity is lost, the next moment after they alight, the whole group is in motion, dispersing over every bough to pick the berries which attracted them from the air. Their

crest is now erected, their wings are seen constantly moving, and so eagerly do they grasp at the berries that they suffer many of them to fall. Every flock passing within hearing is invited to join in the feast, and in a few hours the tree is entirely stripped of its fruit. In this manner they search the whole of the forests, and towards winter are even satisfied with the berries of the dogwood. As the cherries and mulberries ripen in the Middle Districts, the Cedar-bird pays them frequent visits, and when these are out of season, the blackberries and huckleberries have their turn. After this, the Cedars supply a new and favourite food. I think the name of *Fruit-devourers* would be more applicable to these birds than that of *Chatterers*, which they bear among naturalists.

They are excellent fly-catchers also, spending much of their time in the pursuit of winged insects. This is by way of dessert, and is not managed with the vivacity or suddenness of true fly-catchers, but with a kind of listlessness. They start from the branches, and give chase to the insects, ascending after them for a few yards, or move horizontally towards them, perhaps rather farther than when ascending, and as soon as the prey is secured, return to the spot, where they continue watching with slow motions of the head. Towards evening, this amusement is carried on for half an hour, or an hour at a time, and is continued longer at the approach of autumn, the berries then becoming scarcer.

These birds come from the north, but the furthest place from which they have started I am unable to tell. They reach the Middle Districts about the beginning of April, and begin to pair in the beginning of June, when thousands of young birds of other species have already left the nest. Their favourite place for their nest is generally the branch of an apple-tree in the orchard, its horizontal direction being apparently best adapted for their taste, although here they are frequently very insecure, the nest being seldom higher than ten feet from the ground, and often so low as to be seen into. It is composed of coarse grasses externally, and is lined with a finer kind. The female usually lays four eggs, of a purplish white, marked with black spots, which are larger towards the great end. The young are at first fed on insects, but after a week the parents procure different kinds of fruits for them. The Cedar-bird nestles less frequently in the low lands than it does in the upper parts of the country, preferring the immediate neighbourhood of mountains. These birds are more careful of themselves during the intrusion of strangers to their nest, than perhaps any other species, and sneak off, in a very unparental manner, quite out of sight, without ever evincing the least appearance of sorrow on the occasion. I have not been able to ascertain whether they raise more than one brood in a season.

When wounded by a shot, they fall to the ground as if dead, and remain

there in a stiffened posture, as if absolutely stupid. When taken up in the hand, they merely open their bill, without ever attempting to bite, and will suffer a person to carry them in the open hand, without endeavouring to make off. Their crest at such times is laid flat and close to the head. It is lowered or raised at the will of the bird, but more usually stands erect. Their plumage is silky. The females do not exhibit the waxen appendages on the wings so soon as the males; but these appendages form no criterion as to the sex. I have seen males and females with them, both at the extremities of the scapulars and tail-feathers, seldom more than two or three attached to the latter, whilst there were five or six at the former. Very few of these birds remain the whole winter in the Middle States.

Now, kind reader, can *you* give a reason why these birds are so tardy in laying their eggs and rearing their young? It cannot be through want of fruit for the food of their progeny, as the young birds, being at first fed on insects, might continue to be so, at a season when these abound, and as the old birds themselves evince pleasure at seizing them on the wing on all occasions.

I am informed by Mr. TOWNSEND that this species is found about the Columbia river, where he procured specimens. Dr. RICHARDSON speaks of it as not having been observed to the north of the 54th parallel. Mr. DRUMMOND saw several small flocks on the south branch of the Saskatchewan, on the 27th of June. I found it very numerous in the Texas, in the early part of May. It is known to breed from Maryland to Nova Scotia, but none were seen by me in Labrador or Newfoundland. Dr. BREWER has sent me the following note respecting it. "This is almost, if not quite, the only one of our birds to which WILSON has been guilty of injustice. He has branded it as a thief, and denied it the possession of any redeeming quality. That it does not sing I admit, but that it is not deserving of our protection is not true. I forbear entering any plea in its behalf on account of the beauty of its plumage, or its bold defence of its young, which I can attest from actual observation, but I must commend it for the benefit which it confers, in this part of the country, on the farmer, by destroying thousands of the destructive canker-worm. I have watched it for hours together feasting on that deadly enemy to our orchards. It is very abundant, but does not breed until July. The eggs do not vary much in colour. It remains all the year round at Boston, and breeds abundantly in the orchards." The length of the egg is 9 twelfths, its breadth 7 twelfths.

BOMBYCILLA CAROLINENSIS, Briss., vol. ii. p. 337.

CEDAR BIRD, *Ampelis americana*, Wils. Amer. Orn., vol. i. p. 107.

BOMBYCILLA CAROLINENSIS, Bonap. Syn., p. 59.

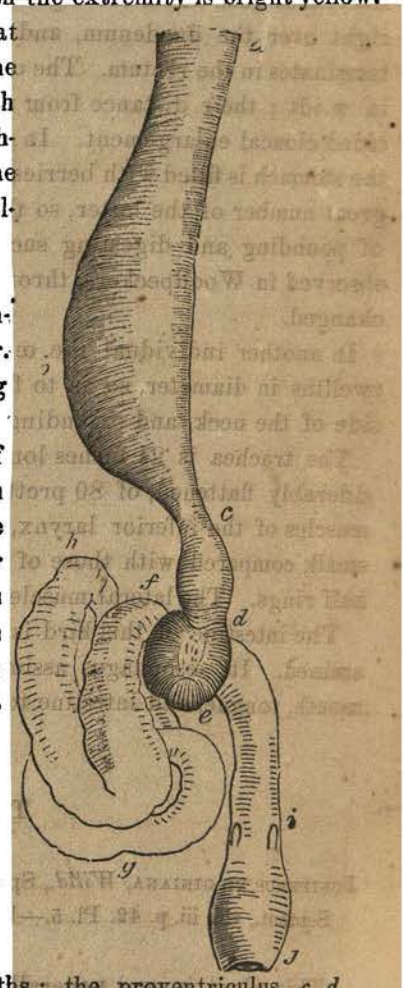
CEDAR BIRD OR CHERRY BIRD, Nutt. Man., vol. i.

CEDAR BIRD, *Bombycilla carolinensis*, Aud. Orn. Biog., vol. i. p. 227 ; vol. v. p. 494

General colour light greyish-brown, passing behind into ash-grey, before into pale brownish-red, of which colour is the upper part of the head ; a black band on the forehead passing backwards over the eye to the occiput, and margined above and below by a narrow white band ; feathers in the angle of the lower mandible black ; abdomen pale yellow ; lower tail-coverts white ; wings and tail dull leaden-blue, darker toward the end; primaries with a very small pale yellow spot at the tip, secondaries tipped with an oblong wax-red appendage, as are the tail-feathers, of which the extremity is bright yellow. Female similar to the male, but somewhat smaller. The oblong appendages to the wings vary from nine to three. Young with the upper parts of a uniform dull greenish-brown; lower parts of the same colour, the throat pale buff, abdomen and lower tail-coverts yellowish-white.

Male, 6¾, 11.

From Texas northward to the Fur Countries. Westward to the Columbia river. Extremely abundant in Louisiana during winter.



In a male preserved in spirits, the roof of the mouth is slightly concave anteriorly, with three slight longitudinal ridges ; the palate covered with small papillæ ; the posterior aperture of the nares linear-oblong, 4 twelfths in length, with the margin papillate ; the tongue 4 twelfths long, triangular, sagittate and papillate at the base, concave above, the tip horny, deeply slit, with two slender points. The width of the mouth is 5½ twelfths. The œsophagus, *a b c d*, is 2 inches 9 twelfths long, its width at the commencement 5 twelfths ; it is presently enlarged to 7 twelfths, and increases to 8 twelfths, of which width it continues to the lower part of the neck, where it contracts to 3 twelfths ; the proventriculus, *c d*,

is 3½ twelfths in breadth. The stomach, *d e*, is a small moderately muscular gizzard, of a roundish form, 7½ twelfths in length, and 8 twelfths in breadth; its lateral muscles well defined, the right 3 twelfths, the left 2½ twelfths thick; the tendons oblong and of moderate size; the epithelium dense, tough, longitudinally rugous, and of a reddish colour. The liver is extremely large, the right lobe 1 inch 8 twelfths in its greatest length, the left 8 twelfths. The intestine, *f g h i j*, is short, and of excessive width, its length 7½ inches, its breadth in the duodenal portion 4½ twelfths, and so continuing with little diminution to the end. The duodenum, *f g h*, curves at the distance of 1¼ inches, passes forwards, as usual, to beneath the liver, then runs down the right side, bends to the left, curves again to the right over the duodenum, and crossing to the right over the stomach terminates in the rectum. The cœca, *i*, are 2½ twelfths long, and 1½ twelfths in width; their distance from the extremity 8 twelfths. There is no decided cloacal enlargement. In the œsophagus are several small berries; the stomach is filled with berries and seeds, and the intestine contains a very great number of the latter, so that this bird evidently has not the power of pounding and digesting such as are hard. The same circumstance is observed in Woodpeckers, through the intestines of which seeds pass unchanged.

In another individual the œsophagus is turgid with globular berries, 2 twelfths in diameter, so as to form an elongated crop, lying on the right side of the neck, and extending over it behind.

The trachea is 2¼ inches long, of the uniform width of 1 twelfth, considerably flattened, of 80 pretty firm entire, and 2 dimidiate rings. The muscles of the inferior larynx, although four in number, are remarkably small, compared with those of a Thrush. The bronchi are slender, of 18 half rings. The lateral muscles are very slender, as are the sterno-tracheal.

The intestine of this bird is proportionally wider than in any other examined. Its œsophagus assimilates it to the Finches and Buntings; its mouth, tongue, and intestine to the Swallows and Flycatchers.

The Red Cedar.

Juniperus virginiana, *Willd.*, Sp. Pl., vol. iv. p. 863. *Mich.* Arbr. Forest. de l'Amer. Septent., vol. iii. p. 42. Pl. 5.—Dioecia monadelphia, *Linn.*—Coniferæ, *Juss.*

This plant is very generally distributed in the United States, and frequently attains a height of from forty to fifty feet, with a diameter of a foot or fifteen inches at the base It is distinguished by its ternate leaves, which

are adnate at the base, and imbricated. The berries are oval, small, and of a bluish colour. The wood is red, close-grained, very durable, and has a strong scent. Its growth is extremely slow, and this circumstance, together with the great destruction of the tree for various purposes, has rendered it difficult to procure cedar-wood of tolerable size in the more accessible parts of the country.

FAMILY XXIII.—SITTINÆ. NUTHATCHES.

Bill of moderate length or rather long, straight, rather slender, conico-subulate, somewhat compressed, with the tips acute, or cuneate. Head ovate; neck short; body full. Tarsi rather short, or of moderate length, slender, compressed, with seven or eight scutella; toes long, very slender; hind toe extremely long; anterior little spreading; claws long, little arched, slender, much compressed, acute. Plumage soft and full. Wings of moderate length, broad, rounded. Tail short, broad, of twelve feathers. Roof of upper mandible very narrow, slightly concave, with three ridges; tongue very slender, with the tip abrupt and bristly; œsophagus without dilatation; stomach roundish, moderately muscular; intestine short and wide; cœca very small. Trachea simple; with a single pair of large inferior laryngeal muscles. Allied to the Titmice on the one hand, and the Woodpeckers on the other.

Genus I.—SITTA, *Linn.* NUTHATCH.

Bill rather long, or of moderate length, straight, conico-subulate, a little compressed, rather obtuse; upper mandible with the dorsal outline very slightly arched, the ridge rather narrow, the sides sloping, the edges sharp, without notches, the tip rather blunt; lower mandible with the angle of moderate length and narrow, the dorsal line ascending and very slightly convex, the sides slightly convex, the tip narrow. Nostrils basal, round operculate, partially concealed by the reverse bristly feathers. Head ovate;

White-breasted Nuthatch.

1. Male. 2. & 3. Female.

Drawn from Nature by J. J. Audubon, F.R.S.F.L.S.

Lith.d Printed & Col.d by J. T. Bowen, Philad.a

neck short; body short. Tarsus rather short, stout, compressed, with eight scutella; toes long, much compressed; first very long, second much shorter than fourth; anterior toes adherent at the base. Claws long, arched, much compressed, laterally grooved, acute. Plumage very soft and blended. Small bristles at the base of the upper mandible. Wings rather long, first quill extremely small, third and fourth longest. Tail short, of twelve feathers, broad, nearly even. Upper mandible slightly concave, with three ridges; tongue slender, very thin, with the point abrupt and terminated by strong bristles; œsophagus without dilatation; stomach rather large, roundish, moderately muscular; intestine rather short and wide; cœca very small.

THE WHITE-BREASTED NUTHATCH.

SITTA CAROLINENSIS, *Linn.*

PLATE CCXLVII.—MALE AND FEMALES.

Only four species of Nuthatch have as yet been observed within the limits of the United States. My opinion however is, that at least two more will be discovered:—one larger than any of those known, in the high wooded plains bordering the Pacific Ocean; the other, of nearly the size of the present species, towards the boundary line of Texas and the United States.

Although the species now under consideration is found in all parts of our extensive country, it is yet the least numerous; there being to appearance more than three of the Brown-headed, and two of the Red-bellied, for every one of the White-breasted. It is an inhabitant of the forest and the orchard, frequently approaching to the very doors of the farm-houses during winter, when it is not unusually seen tapping at the eaves beneath the roof, thrusting itself into barns and houses, or searching for food among the poultry *on the ground*, where it moves prettily by short hops. During summer it gives a preference to the interior of the forest, and lives in a retired and secluded manner, especially during the breeding season. Although a lively bird, its actions are less animated, and it exhibits less petulance and restlessness than the other species. It moves alertly, however, when searching for food, climbing or retrograding downwards or sidewise, with cheerfulness and a

degree of liveliness, which distinguish it at once from other birds. Now and then it has a quaint look, if I may so speak, while watching the observer, clinging to the bark head downward, and perhaps only a few feet distant from him whom it well knows to be its enemy, or at least not its friend, for many farmers, not distinguishing between it and the Sap-sucker, (*Picus pubescens,*) shoot at it, as if assured that they are doing a commendable action.

During the breeding season, the affection which this bird ordinarily shows to its species, is greatly increased. Two of them may be seen busily engaged in excavating a hole for their nest in the decayed portion of the trunk or branch of a tree, all the time congratulating each other in the tenderest manner. The male, ever conspicuous on such occasions, works in earnest, and carries off the slender chips, chiselled by the female. He struts around her, peeps into the hole, chirrups at intervals, or hovers about her on the wing. While she is sitting on her eggs, he seldom absents himself many moments; now with a full bill he feeds her, now returns to be assured that her time is pleasantly spent.

When the young come from the egg, they are fed with unremitting care. They now issue from their wooden cave, and gently creep around its aperture. There, while the genial rays of the summer's sun give vigour to their tender bodies, and enrich their expanding plumage, the parents, faithful guardians to the last, teach them how to fly, to ascend the tree with care, and at length to provide for their own wants. Ah! where are the moments which I have passed, in the fulness of ecstacy, contemplating the progress of these amiable creatures! Alas! they are gone, those summer days of hope and joy are fled, and the clouds of life's winter are mustering in their gloomy array.

This species breeds twice in the year, in the Southern and Middle States, seldom more than once to the eastward of New York. In the State of Maine, they work at their nest late in May; in Nova Scotia not until June. Farther north I did not find them. Sometimes they are contented with the hole bored by any small Woodpecker, or even breed in the decayed hollow of a tree or fence. The eggs, five or six in number, are dull white, spotted with brown at the larger end. They are laid on detached particles of wood.

The notes of the White-breasted Nuthatch are remarkable on account of their nasal sound. Ordinarily they resemble the monosyllables *hānk, hānk, kānk, kānk;* but now and then in the spring, they emit a sweeter kind of chirp, whenever the sexes meet, or when they are feeding their young.

Its flight is rapid, and at times rather protracted. If crossing a river or a large field, they rise high, and proceed with a tolerably regular motion; but when passing from one tree to another, they form a gently incurvated sweep.

They alight on small branches or twigs, and now and then betake themselves to the ground to search for food.

Their bill is strong and sharp, and they not unfrequently break acorns, chestnuts, &c., by placing them in the crevices of the bark of trees, or between the splinters of a fence-rail, where they are seen hammering at them for a considerable time. The same spot is usually resorted to by the Nuthatch as soon as it has proved to be a good and convenient one. A great object seems to be to procure the larvæ entombed in the kernels of the hard fruits, insects being at all times the favourite food of these birds. They are fond of roosting in their own nest, to which I believe many return year after year, simply cleaning or deepening it for the purpose of depositing their eggs in greater security. Like others of the tribe, they hang head-downwards to sleep, especially in a state of captivity.

The young obtain their full plumage during winter. The only differences between the male and the female are, a slight inferiority of the latter as to size, and a somewhat less depth of colouring. Like the other species, they now and then alight on a top branch for an instant, in the manner used by other birds.

This lively roamer of our forests extends its rambles from the Texas, where I found it abundant, to the shores of the Columbia River, from which country specimens were brought by Mr. TOWNSEND. It is not mentioned as having been found in the Fur Countries.

WHITE-BREASTED AMERICAN NUTHATCH, *Sitta carolinensis*, Wils. Amer. Orn., vol. i. p. 10.

SITTA CAROLINENSIS, Bonap. Syn., p. 96.

WHITE-BREASTED AMERICAN NUTHATCH, Nutt. Man., vol. i. p. 581.

WHITE-BREASTED NUTHATCH, *Sitta carolinensis*, Aud. Orn. Biog., vol. ii. p. 299; vol. v. p. 473.

Adult Male.

Bill straight, of the length of the head, very hard, conico-subulate, a little compressed, acute; upper mandible with the dorsal outline very slightly arched, the edges sharp towards the point; lower mandible smaller, of equal length, straight. Nostrils basal, round, half-closed by a membrane, partially covered by the frontal feathers. The general form is short and compact. Feet rather strong, the hind toe stout, and as long as the middle toe, with a strong hooked claw; the claws arched, compressed, acute.

Plumage soft, blended, with little gloss, excepting on the head. Wings rather short, broad, the second primary longest. Tail short, broad, even, of twelve rounded feathers.

Bill black, pale blue at the base of the lower mandible. Iris dark brown.

Feet brown. The upper part of the head and the hind neck deep black, glossed with blue, that colour curving down on either side of the neck at its base. The back, wing, and tail-coverts, and middle feathers of the tail light greyish-blue. Quills black, edged with bluish-grey; three lateral tail feathers black, with a broad band of white near the end, the rest black, excepting the middle ones. The sides of the head, space above the eye, fore neck and breast white; abdomen and lower tail-coverts brownish-red, with white tips; under wing-coverts black.

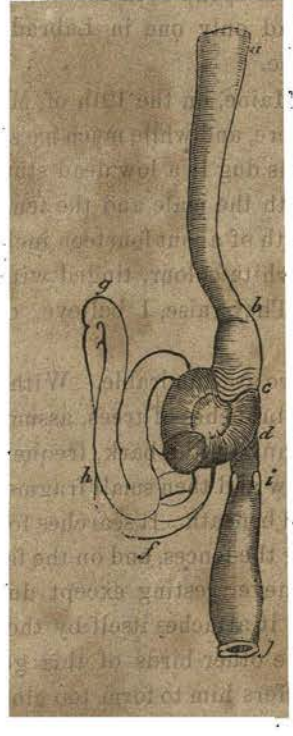
Length 5¼ inches, extent of wings 11; bill along the ridge $\frac{8}{12}$, along the gap $\frac{12}{12}$; tarsus $\frac{8}{12}$; middle toe $\frac{10}{12}$.

Adult Female.

The female resembles the male.

Common from Texas to Maine. Throughout the interior to the Columbia. Resident.

On the roof of the mouth are three anterior ridges, of which the middle is larger; both mandibles are slightly concave, the lower with a median elevated line. Tongue 6 twelfths long, emarginate and finely papillate at the base, slender, very thin, the point abrupt, and terminated by several strong bristles. Œsophagus, *a b c*, 1 inch 10 twelfths long, funnel-shaped at the commencement, its width being there 4 twelfths, and then gradually diminishing to 2 twelfths. The stomach, *c d*, is rather large, broadly elliptical, 7½ twelfths long, 6 twelfths broad; its lateral muscles thin; the epithelium slightly rugous. It is filled with insects and larvæ. Intestine, *e f g h*, rather short and wide, 7 inches in length, its greatest width 2 twelfths; the rectum, *i j*, 3 twelfths wide; the cloaca 4 twelfths; the cœca, *i*, 2 twelfths long, ⅓ twelfth in breadth, and 10 twelfths from the extremity. The trachea is 1½ inches long, 1 twelfth in breadth; its rings feeble, 75 in number. The sterno-tracheal muscles very slender; the inferior laryngeal form on each side a small knob, inserted into the last half ring in its whole extent. Bronchial half rings about 12. There is on each side an elongated salivary gland, about ⅓ twelfth in breadth. The hyoid bones are not unusually elongated. In the form of the tongue the Nuthatches resemble the Titmice.



Red-bellied Nuthatch

1. Male. 2. Female.

Drawn from Nature by J.J. Audubon, F.R.S.F.L.S.

Lith.d Printed & Col.d by J. T. Bowen, Philad.a

THE RED-BELLIED NUTHATCH.

SITTA CANADENSIS. *Linn.*

PLATE CCXLVIII.—MALE AND FEMALE.

While the Brown-headed Nuthatch perambulates the southern districts, the Red-bellied species spends its time in the eastern and northern States, the two dividing the country, as it were, nearly equally between them. The southern limits of this little bird seldom extend farther than Maryland. It is more plentiful in Pennsylvania, particularly in the mountainous parts of that State, and becomes still more abundant as you proceed towards Maine and Nova Scotia, where the greater number spend even the coldest winters. Yet I saw none in Newfoundland, and only one in Labrador, which had probably been blown thither by a gale.

I found it building its nest near Eastport in Maine, on the 19th of May, before the Blue-bird had made its appearance there, and while much ice still remained on the northern exposures. The nest is dug in a low dead stump, seldom more than four feet from the ground, both the male and the female working by turns, until they have got to the depth of about fourteen inches. The eggs, four in number, are small, and of a white colour, tinged with a deep blush, and sprinkled with reddish dots. They raise, I believe, only one brood in the season.

The activity and industry of this little creature are admirable. With the quickness of thought it moves up and down the branches of trees, assuming various positions, examining every hole or cranny in the bark, frequently rapping against it with its bill, and detaching now and then small fragments, in order to get at the insects or larvæ concealed beneath. It searches for its food among the leaves of the tallest pines, along the fences, and on the fallen logs, ever busy, petulant, and noisy, probably never resting except during the night, when, like other species of the tribe, it attaches itself by the feet to the bark, and sleeps head downwards. Like other birds of this genus, also, it is careless of man, although it never suffers him to form too close an acquaintance. During the breeding season, they move in pairs, and manifest a strong mutual attachment. Their almost incessant *hink, hink, hink-hink,* is heard at every hop they take, but less loudly sounded than the notes of

the Brown-headed species, the male being more prodigal of noise than the female, which, however, now and then answers to his call.

It is pleasant to see such a pair leading their offspring through the tops of the tall trees of our great pine forests of the north, accompanied by a train of small Woodpeckers and Creepers, all bent on the same object, that of procuring food. Gaily they move from tree to tree, each emitting its peculiar note, and all evincing the greatest sociality. If danger is apparent, dead silence takes place, but as soon as their fear is removed, they become as clamorous and lively as before.

The flight of the Red-bellied Nuthatch is seldom protracted farther than from tree to tree; and in this manner a certain number go south at the approach of winter, some at this season venturing as far as South Carolina, although they are never seen in the maritime districts of that State. They are plentiful during summer in the Pocano mountains of Pennsylvania, and many breed there. Those which remain in our northern States during winter, now and then show themselves in the orchards and farm-yards alighting about the eaves of the out-houses, to seek for food.

While at sea, on one of my migrations from Europe to America, and at a distance of 300 miles from land, I saw one of these birds come on board one evening, during a severe gale. It alighted on the rigging, and proceeded at once to search for food in its usual manner. It was caught and brought to me; but although I gave it flies and some bits of cheese, it refused to touch them, generally sitting in the bottom of the cage with its head under its wing, and it died in the course of the night. On opening it, I could not perceive a particle of food in its stomach, so that its sudden death was probably occasioned by inanition and fatigue.

Although this species was not seen by Dr. RICHARDSON in the Fur Countries, it is an inhabitant of the Columbia river district, where it was found by Mr. TOWNSEND.

Male, 4½, 8.

From Maryland to Nova Scotia. Common. One seen in Labrador. Columbia river. Resident.

RED-BELLIED NUTHATCH, *Sitta canadensis*, Wils. Amer. Orn., vol. i. p. 40.

SITTA CANADENSIS, Bonap. Syn., p. 96.

RED-BELLIED NUTHATCH, Nutt. Man., vol. i. p. 583.

RED-BELLIED NUTHATCH, *Sitta canadensis*, Aud. Orn. Biog., vol. ii. p. 24; vol. v. p. 474.

Adult Male.

Bill straight, of moderate length, very hard, conico-subulate, a little compressed, more or less wedge-shaped at the tip; upper mandible with the

Brown-headed Nuthatch.

1. Male. 2. Female.

Drawn from Nature by J.J.Audubon, FRSFLS.

Lith.ª Printed & Col.ª by J. T. Bowen. Philad.ª

dorsal outline very slightly arched, the edges sharp towards the point; lower mandible smaller, of equal length, straight. Nostrils basal, round, half-closed by a membrane, partially covered by the frontal feathers. The general form is short and compact. Feet rather strong, the hind toe stout, with a strong hooked claw; the claws arched, compressed, acute.

Plumage soft, blended, with little gloss. Wings rather short, broad, the second and third primaries longest. Tail short, broad, even, of twelve rounded feathers.

Bill black. Iris brown. Feet and claws flesh-coloured, tinged with yellowish-green. The general colour of the plumage above is a light leaden-grey, beneath pale brownish-red. The top of the head is bluish-black. A long white line passes over the eye; a broader line of black from the bill to the eye, and beyond it down the neck; the throat white. Primary quills dusky, margined with greyish-blue; tail-feathers blackish, the two middle ones of the general colour of the back; the lateral ones white towards the end.

Length 4½ inches; extent of wings 8; bill along the ridge $\frac{5}{12}$; gap-line $\frac{7}{12}$.

Adult Female.

There is scarcely any perceptible external difference between the sexes, the lower parts of the female being merely a little paler, and the black of the head not so deep.

THE BROWN-HEADED NUTHATCH.

SITTA PUSILLA, *Lath.*

PLATE CCXLIX.—MALE AND FEMALE.

Actively and most diligently employed is this little rover ever found in our pine woodlands of the Southern Districts, where it resides all the year, and beyond which it seldom extends, few being ever seen to the eastward of Maryland. Those large tracts of sandy soil that occupy the greater portion of the Floridas, Georgia, and the Carolinas, appear to suit its habits best. It is rather rare in Louisiana, and none go so far as Kentucky. It is the smallest species of Nuthatch as yet found in the United States. Its notes

are several octaves above those of the White-bellied Nuthatch, more shrill and at least one and a half above those of its northern cousin, the Red-bellied.

Although fond of pine-trees and pine-barrens, it does not confine itself to these, but may not unfrequently be seen pursuing its avocations on lower trees and on fences, mounting, descending, turning in every imaginable position, and with a quickness of motion so much greater than that of most other birds as to render it extremely difficult to shoot at. It examines every hole and cranny of the bark of trees, as well as their leaves and twigs, on which it finds abundance of food at all seasons. During the breeding period they move in pairs, and are constantly chattering. Their notes resemble the syllables *deut, deut, dend, dend,* and although not musical are not disagreeable, particularly when heard in the woods in which they usually reside, and where at that season a mournful silence intimates the wildness of the place.

When the young have left the nest they continue together, and move from tree to tree with the activity of their parents, who join them when the succeeding broods are able to find food for themselves. Towards winter they associate with the smaller species of Woodpeckers, the Brown Creeper, and the *Southern* Black-headed Tit. These birds pursue their avocations with so much cheerfulness that the woods echo to their notes. I have seen a congregation of these Nuthatches, amounting to fifty or more, thus perambulating the Floridas in the months of November and December. In those districts they pair in the beginning of February, and have eggs about the middle of that month, while in South Carolina they breed about a month later.

The nest is usually excavated by the birds themselves, in the dead portion of a low stump or sapling, sometimes only a few feet from the ground, but not unfrequently so high as thirty or forty feet. The little creatures work in concert, with great earnestness, for several days, until the hole, which is round, and not larger at its entrance than the body of the bird, is dug ten or twelve inches deep, and widening at the bottom. The eggs are laid on the bare wood; they are from four to six, white, with reddish dots, and scarcely larger than those of the Humming-bird. They frequently raise three broods in the season, but more commonly two.

Extremely careless in the presence of man, who indeed seldom molests them, they often peep at him when at the distance of only a few feet; yet when apprehensive of danger, they instantly fly off or ascend the tree, and are out of sight in a moment.

Their flight is similar to that of the other species, and like them they frequently utter their notes while on the wing. Now and then they are

seen on the ground, where they hop and turn over the dead leaves in search of their food, which consists entirely of insects and their larvæ.

The young of this species do not acquire the brown colour of the head until the approach of spring, when no difference is observable between the sexes.

BROWN-HEADED NUTHATCH, *Sitta pusilla*, Wils. Amer. Orn., vol. ii. p. 105.
SITTA PUSILLA, Bonap. Syn., p. 97.
BROWN-HEADED NUTHATCH, Nutt. Man., vol. i. p. 584.
BROWN-HEADED NUTHATCH, *Sitta pusilla*, Aud. Orn. Biog., vol. ii. p. 151.

Male, 4, 8.

From Texas to Maryland. In the interior to Mississippi. Extremely abundant. Louisiana, Georgia, Alabama, Florida, and the Carolinas. Resident.

Adult Male.

Bill of moderate length, strong, subconical, compressed, the tip abrupt and wedge-shaped; upper mandible slightly convex in the dorsal outline, the sides sloping, the edges acute; dorsal outline of lower mandible straight. Nostrils basal, lateral, oblong. General form short and robust. Feet rather short and strong; tarsus compressed, anteriorly scutellate, behind sharp; toes free, scutellate above, the hind toe strong; claws arched, compressed, acute, that of the hind toe large.

Plumage soft and blended; wings of ordinary length, the second, third, and fourth quills longest. Tail short, even, of twelve rounded feathers.

Bill brownish-black above, and on the tips of the lower mandible, the base of which is light greyish-blue. Iris hazel. Feet dusky brown. The general colour of the plumage above is dull leaden-grey; the two middle tail-feathers of the same tint; the rest black, the margin of the outermost and the ends of it, and of the three next on each side, white, the tips grey. Upper part of the head and hind-neck light reddish-brown, with a white spot on the hind-neck. The under parts in general are dull white.

Length 4 inches, extent of wings 8; bill along the back $\frac{5}{12}$, along the edge $\frac{7}{12}$; tarsus

Adult Female.

The female has the tints paler, but in other respects resembles the male.

CALIFORNIAN NUTHATCH.

SITTA PYGMEA, *Vigors.*

PLATE CCL.—ADULT.

The figures of this species were drawn from a specimen kindly lent me by the Council of the Zoological Society of London. It was procured by Captain BEECHEY in Upper California, and is therefore entitled to a place in our Fauna. Nothing is known of the habits of this bird, nor do I even know the sex of the individual figured.

CALIFORNIAN NUTHATCH, *Sitta pygmæa.* Aud. Orn. Biog., vol. v. p. 163.

Adult, $3\frac{10}{12}$, wing, $3\frac{5}{12}$.

California.

Adult.

Bill of moderate length, rather slender, subconical, compressed, the tip depressed; upper mandible slightly convex in the dorsal outline, the sides sloping, the edges sharp and overlapping; lower mandible with the angle short and rather narrow, the dorsal line ascending and slightly convex. Nostrils basal, lateral, oblong.

Head rather large, ovate; neck short; body short. Feet rather short and strong; tarsus compressed, anteriorly scutellate, behind sharp; toes free, scutellate above, the hind toe very large and strong; claws arched, much compressed, laterally grooved, acute, that of the hind toe much larger.

Plumage soft and blended. Wings of ordinary length; the first quill very small, the second considerably shorter than the third, the fourth longest. Tail very short, even, of twelve rounded soft feathers.

Bill bluish-black. Feet and claws reddish-brown. The upper part of the head and the hind neck are dull greyish-brown; the upper parts of the body dull leaden-grey; the quills and tail-feathers dusky, margined with light grey, the two lateral tail-feathers on each side with a white band toward the base; the lower parts brownish-white.

Length to end of tail $3\frac{10}{12}$ inches; bill along the ridge $\frac{6}{12}$; wing from flexure $3\frac{5}{12}$; tail $1\frac{1}{4}$.

Californian Nuthatch?

Adult.

Drawn from Nature by J.J.Audubon,F.R.S.F.L.S. Lith.d Printed & Col.d by J.T.Bowen, Philad.a

FAMILY XXIV.—TROCHILINÆ. HUMMING-BIRDS.

Bill long, very slender, straight or arched, somewhat depressed at the base, subcylindrical, flexible, acute. Head rather large; neck of moderate length; body moderately robust. Feet very short, rather stout; tarsus extremely short; toes of moderate size; the anterior coherent at the base, and nearly of equal length, the hind toe articulated high on the tarsus; claws rather long, arched, much compressed, very acute. Plumage compact above, soft and blended beneath, often with metallic lustre; wings very long, extremely narrow, falciform, with the first quill longest, the other primaries rapidly diminishing; secondaries extremely short. Tail various, of ten feathers. Tongue very long, slender, with two flat, thin-edged terminal filaments, and extensile by means of the elongation of the hyoid bones, which curve over the head to the fore part of the forehead, and with their muscles slide in a groove, like those of the Woodpeckers. Œsophagus narrow, considerably enlarged about the middle; stomach extremely small, roundish, moderately muscular, its epithelium dense and longitudinally rugous; intestine very short and of moderate width; no cœca; cloaca globular. Trachea, simple, but divided very high up on the neck, so that the bronchi are of excessive length, with a large pair of inferior laryngeal muscles.

Genus I.—TROCHILUS, *Linn.* HUMMING-BIRD.

Bill long, subulate, depressed at the base, cylindrical, straight, or slightly arched, flexible; upper mandible with the ridge narrow at the base, convex in the rest of its extent, the sides sloping, the edges soft; lower mandible with the angle extremely acute and elongated, the sides erect, the tip acute. Nostrils linear, with a membranous flap above. Head small; neck short; body moderately stout. Feet very short; middle toe scarcely longer than the rest. Plumage rather blended and glossy above. Wings very long, extremely narrow; tail rather long, broad, nearly even. The other characters as above.

THE MANGO HUMMING-BIRD.

TROCHILUS MANGO, *Linn.*

PLATE CCLI.—MALES AND FEMALE.

I am indebted to my learned friend the Reverend JOHN BACHMAN for this species of Humming-bird, of which he received a specimen from our mutual friend Dr. STROBEL, and afterwards presented it to me.

"Hitherto," says he, "it has been supposed that only one species of Humming-bird (the *Trochilus Colubris*) ever visits the United States. Although this is a genus consisting of upwards of a hundred species, all of which are peculiar to the Continent of America and the adjoining islands, yet with few exceptions they are confined to the tropics. In those warm climates, where the Bignonias and other tubular flowers that bloom throughout the year, and innumerable insects that sport in the sun-shine, afford an abundance of food, these lively birds are the greatest ornaments of the gardens and forests. Such in most cases is the brilliancy of their plumage, that I am unable to find apt objects of comparison unless I resort to the most brilliant gems and the richest metals. So rapid is their flight that they seem to outstrip the wind. Almost always on the wing, we scarcely see them in any other position. Living on the honeyed sweets of the most beautiful flowers, and the minute insects concealed in their corollas, they come to us as etherial beings, and it is not surprising that they should have excited the wonder and admiration of mankind.

"It affords me great pleasure to introduce to the lovers of Natural History this species of Humming-bird as an inhabitant of the United States. The specimen which is now in my posession, was obtained by Dr. STROBEL, at Key West, in East Florida. He informed me that he had succeeded in capturing it from a bush where he had found it seated, apparently wearied after its long flight across the Gulf of Mexico, probably from some of the West India Islands, or the coast of South America. Whether this species is numerous in any part of Florida, I have no means of ascertaining. The interior of that territory, as its name indicates, is the land of flowers, and consequently well suited to the peculiar habits of this genus; and as it has seldom been visited by ornithologists, it is possible that not only this, but several other species of Humming-birds, may yet be discovered as inhabitants of our southern country.

Mango Humming bird.

1. 2. Males. 3. Female.

Bignonia grandifolia.

Drawn from Nature by J.J. Audubon, F.R.S.F.L.S. Lith.ª Printed & Col.ª by J. T. Bowen. Phila.ª

"I have not seen the splendid engravings of this genus by Messrs. VIEILLOT and AUDEBERT, in which the *Trochilus Mango* is said to be figured; but from the description contained in LATHAM'S Synopsis and SHAW'S Zoology, I have no hesitation in pronouncing it an individual of that species."

The female figure introduced in the plate was taken from a specimen procured at Charleston; but whether it had been found in the United States or not, could not be ascertained.

TROCHILUS MANGO, Linn. Syst. Nat., vol. i. p. 191.
MANGO HUMMING-BIRD, *Trochilus mango*, Aud. Orn. Biog., vol. ii. p. 480.

Male, $4\frac{3}{4}$, 8.
Florida Keys. Rare. Migratory.
Adult Male.

Bill long, subulate, depressed at the base, slightly arched, flexible; upper mandible with the back broad and convex, the sides sloping, the edges soft; lower mandible with the angle extremely acute, forming a groove for one-half of its length, the remaining part narrower on the back, the sides erect; both mandibles deeply channelled internally, nostrils basal, lateral, linear. Head small, neck short, body short, moderately robust. Feet very short and feeble; tarsus very short, roundish; toes very small, the three anterior united at the base, scutellate above, compressed, differing little in length; claws small, arched, compressed, acute.

Plumage soft and blended. Wings long, extremely narrow, falciform, the first quill longest, the other primaries gradually diminishing in length; the secondaries extremely short, narrow, and rounded. Tail ample, rather long, of ten broad rounded feathers, the outer incurvate.

Bill black. Iris brown. Feet dusky. Head, hind neck and back splendent with bronze, golden, and green reflections; wings dusky, viewed in certain lights deep purplish-brown. Middle tail-feathers black, glossed with green and blue, the rest deep crimson-purple, tipped and partially margined with steel-blue. Fore part of the neck, and middle of the breast, velvet-black, margined on each side with emerald-green, the sides yellowish-green.

Length $4\frac{3}{4}$ inches, extent of wings 8; bill 1; tarsus $\frac{2}{12}$.

ANNA HUMMING-BIRD.

TROCHILUS ANNA, *Less.*

PLATE CCLII—MALES AND FEMALE.

My good friend THOMAS NUTTALL, while travelling from the Rocky Mountains toward California, happened to observe on a low oak bush a Humming-bird's nest on which the female was sitting. Having cautiously approached, he secured the bird with his hat. The male in the meantime fluttered angrily around, but as my friend had not a gun, he was unable to procure it.

The nest, which he has presented to me, is attached to a small branch, and several leaves from a twig issuing from it, which have apparently been bent down for the purpose. It is very small, even for the size of the bird, being an inch and a half in depth, and an inch and a quarter in breadth externally at the mouth, while its internal diameter is ten-twelfths, and its depth eight and a half twelfths. It is of a conical form, and composed of the cottony down apparently of some species of willow, intermixed with scales of catkins and a few feathers, and lined with the same substances. The eggs, two in number, are pure white, of a nearly elliptical form, five-twelfths of an inch long, and three and a quarter twelfths in their greatest breadth.

The figures of the nest and female are taken from the specimens presented to me by Mr. NUTTALL. Those of the male I made from specimens, for the use of which I am indebted to Mr. LODDIGE, of London, whose collection of Humming-birds is unrivalled. This species is the fourth now found within the limits of the United States.

OISEAU-MOUCHE ANNA, *Ornismya Anna*, Less. Traite d'Ornith., p. 281.
ANNA HUMMING-BIRD, *Trochilus Anna*, Aud. Orn. Biog., vol. v. p. 238.

Male, $3\frac{10}{12}$, wing, $2\frac{1}{12}$.

Rocky Mountains towards California. Common. Migratory.

Adult Male.

Bill long, very slender, cylindrical, slightly depressed at the base, acuminate; upper mandible with the dorsal line straight, the ridge narrow at the base and convex toward the end, the sides convex, the edges overlapping; lower mandible with the angle very long and extremely narrow, the dorsal

Anna Humming bird.

1. 2. Males 3 Female.

Hibiscus Virginicus.

Drawn from Nature by J.J. Audubon, F.R.S.F.L.S.

Lith^d Printed & Col^d by J. T. Bowen. Phila^a

line slightly decurvate, the tip forming a very slender point. Nostrils basal, linear.

Head of ordinary size, oblong; neck short; body slender. Feet very small; tarsus extremely short, rather stout, feathered more than half-way down; toes small, the lateral equal, the middle toe not much longer, the hind toe a little shorter than the lateral; anterior toes united at the base; claws rather long, stout, arched, compressed, laterally grooved, very acute.

Plumage soft and blended; feathers on the upper part of the head, cheeks, and throat, oblongo-obovate, with their filaments toward the end thickened and flattened with metallic gloss, those on the sides of the neck more elongated. Wings rather long, extremely narrow, somewhat falcate; the primaries rapidly graduated, the first being longest; the number of quills sixteen. Tail of moderate length, emarginate and rounded.

Bill and feet black. The compact feathers of the head, cheeks, and throat are blood-red, changing to gold, and having a tinge of blue; the upper parts light gold-green; the quills and tail-feathers dusky brown; the lower parts brownish-white.

Length to end of tail $3\frac{10}{12}$ inches; bill along the ridge $\frac{10}{12}$; wing from flexure $2\frac{1}{12}$; tail $1\frac{1}{4}$; tarsus $\frac{2}{12}$; hind toe $\frac{1}{12}$, its claw $\frac{1}{12}$; middle toe $\frac{2}{12}$, its claw $\frac{1}{12}$.

Female.

The female differs from the male in several respects. The tail is rounded, without emargination; the metallic feathers are reduced to an irregular patch on the throat; the upper part of the head and the cheeks are greenish-grey, the upper parts glossy green as in the male, the wings dusky, the middle tail-feathers green, the rest greenish-grey at the base, black toward the end, with the tip white; the lower parts dull grey, the sides tinged with green.

Length to end of tail $3\frac{9}{12}$ inches; bill along the ridge $\frac{9}{12}$; wing from flexure 2; tail $1\frac{1}{4}$.

THE RUBY-THROATED HUMMING-BIRD.

TROCHILUS COLUBRIS, *Linn.*

PLATE CCLIII.—MALES, FEMALE, AND YOUNG.

Where is the person who, on seeing this lovely little creature moving on humming winglets through the air, suspended as if by magic in it, flitting from one flower to another, with motions as graceful as they are light and airy, pursuing its course over our extensive continent, and yielding new delights wherever it is seen;—where is the person, I ask of you, kind reader, who, on observing this glittering fragment of the rainbow, would not pause, admire, and instantly turn his mind with reverence toward the Almighty Creator, the wonders of whose hand we at every step discover and of whose sublime conceptions we everywhere observe the manifestations in his admirable system of creation?—There breathes not such a person; so kindly have we all been blessed with that intuitive and noble feeling—admiration!

No sooner has the returning sun again introduced the vernal season, and caused millions of plants to expand their leaves and blossoms to his genial beams, than the little Humming-bird is seen advancing on fairy wings, carefully visiting every opening flower-cup, and, like a curious florist, removing from each the injurious insects that otherwise would ere long cause their beauteous petals to droop and decay. Poised in the air, it is observed peeping cautiously, and with sparkling eye, into their innermost recesses, whilst the etherial motions of its pinions, so rapid and so light, appear to fan and cool the flower, without injuring its fragile texture, and produce a delightful murmuring sound, well adapted for lulling the insects to repose. Then is the moment for the Humming-bird to secure them. Its long delicate bill enters the cup of the flower, and the protruded double-tubed tongue, delicately sensible, and imbued with a glutinous saliva, touches each insect in succession, and draws it from its lurking place, to be instantly swallowed. All this is done in a moment, and the bird, as it leaves the flower, sips so small a portion of its liquid honey, that the theft, we may suppose, is looked upon with a grateful feeling by the flower, which is thus kindly relieved from the attacks of her destroyers.

The prairies, the fields, the orchards and gardens, nay, the deepest shades of the forests, are all visited in their turn, and everywhere the little bird

Ruby-throated Humming bird

1. 2. Males. 3 Female. 4 Young.

Bignonia radicans.

Drawn from Nature by J.J. Audubon, F.R.S. F.L.S.

Lith.ᵈ Printed & Col.ᵈ by J. T. Bowen, Phila.ᵈ

meets with pleasure and with food. Its gorgeous throat in beauty and brilliancy baffles all competition. Now it glows with a fiery hue, and again it is changed to the deepest velvety black. The upper parts of its delicate body are of resplendent changing green; and it throws itself through the air with a swiftness and vivacity hardly conceivable. It moves from one flower to another like a gleam of light, upwards, downwards, to the right, and to the left. In this manner, it searches the extreme northern portions of our country, following with great precaution the advances of the season, and retreats with equal care at the approach of autumn.

I wish it were in my power at this moment to impart to you, kind reader, the pleasures which I have felt whilst watching the movements, and viewing the manifestation of feelings displayed by a single pair of these most favourite little creatures, when engaged in the demonstration of their love to each other:—how the male swells his plumage and throat, and dancing on the wing, whirls around the delicate female; how quickly he dives towards a flower, and returns with a loaded bill, which he offers to her to whom alone he feels desirous of being united; how full of ecstacy he seems to be when his caresses are kindly received; how his little wings fan her, as they fan the flowers, and he transfers to her bill the insect and the honey which he has procured with a view to please her; how these attentions are received with apparent satisfaction; how, soon after, the blissful compact is sealed; how, then, the courage and care of the male are redoubled; how he even dares to give chase to the Tyrant Fly-catcher, hurries the Blue-bird and the Martin to their boxes; and how, on sounding pinions, he joyously returns to the side of his lovely mate. Reader, all these proofs of the sincerity, fidelity, and courage, with which the male assures his mate of the care he will take of her while sitting on her nest, may be seen, and have been seen, but cannot be portrayed or described.

Could you, kind reader, cast a momentary glance on the nest of the Humming-bird, and see, as I have seen, the newly-hatched pair of young, little larger than humble-bees, naked, blind, and so feeble as scarcely to be able to raise their little bill to receive food from the parents; and could you see those parents, full of anxiety and fear, passing and repassing within a few inches of your face, alighting on a twig not more than a yard from your body, waiting the result of your unwelcome visit in a state of the utmost despair,—you could not fail to be impressed with the deepest pangs which parental affection feels on the unexpected death of a cherished child. Then how pleasing is it, on your leaving the spot, to see the returning hope of the parents, when, after examining the nest, they find their nurslings untouched! You might then judge how pleasing it is to a mother of another kind, to hear the physician who has attended her sick child assure her that the crisis is

over, and that her babe is saved. These are the scenes best fitted to enable us to partake of sorrow and joy, and to determine every one who views them to make it his study to contribute to the happiness of others, and to refrain from wantonly or maliciously giving them pain.

I have seen humming-birds in Louisiana as early as the 10th of March. Their appearance in that State varies, however, as much as in any other, it being sometimes a fortnight later, or, although rarely, a few days earlier. In the Middle Districts, they seldom arrive before the 15th of April, more usually the beginning of May. I have not been able to assure myself whether they migrate during the day or by night, but am inclined to think the latter the case, as they seem to be busily feeding at all times of the day, which would not be the case had they long flights to perform at that period. They pass through the air in long undulations, raising themselves for some distance at an angle of about 40 degrees, and then falling in a curve; but the smallness of their size precludes the possibility of following them farther than fifty or sixty yards without great difficulty, even with a good glass. A person standing in a garden by the side of a Common Althæa in bloom, will be as surprised to hear the humming of their wings, and then see the birds themselves within a few feet of him, as he will be astonished at the rapidity with which the little creatures rise into the air, and are out of sight and hearing the next moment. They do not alight on the ground, but easily settle on twigs and branches, where they move sidewise in prettily measured steps, frequently opening and closing their wings, pluming, shaking and arranging the whole of their apparel with neatness and activity. They are particularly fond of spreading one wing at a time, and passing each of the quill-feathers through their bill in its whole length, when, if the sun is shining, the wing thus plumed is rendered extremely transparent and light. They leave the twig without the least difficulty in an instant, and appear to be possessed of superior powers of vision, making directly towards a Martin or a Blue-bird, when fifty or sixty yards from them, and reaching them before they are aware of their approach. No bird seems to resist their attacks, but they are sometimes chased by the larger kinds of humble-bees, of which they seldom take the least notice, as their superiority of flight is sufficient to enable them to leave these slow moving insects far behind in the short space of a minute.

The nest of this Humming-bird is of the most delicate nature, the external parts being formed of a light grey lichen found on the branches of trees, or on decayed fence-rails, and so neatly arranged round the whole nest, as well as to some distance from the spot where it is attached, as to seem part of the branch or stem itself. These little pieces of lichen are glued together with the saliva of the bird. The next coating consists of cottony substance, and

the innermost of silky fibres obtained from various plants, all extremely delicate and soft. On this comfortable bed, as if in contradiction to the axiom that the smaller the species the greater the number of eggs, the female lays only two, which are pure white and almost oval. Ten days are required for their hatching, and the birds raise two broods in a season. In one week the young are ready to fly, but are fed by the parents for nearly another week. They receive their food directly from the bill of their parents, which disgorge it in the manner of Canaries or Pigeons. It is my belief that no sooner are the young able to provide for themselves than they associate with other broods, and perform their migration apart from the old birds, as I have observed twenty or thirty young Humming-birds resort to a group of trumpet-flowers, when not a single old male was to be seen. They do not receive the full brilliancy of their colours until the succeeding spring, although the throat of the male bird is strongly imbued with the ruby tints before they leave us in autumn.

The Ruby-throated Humming-bird has a particular liking for such flowers as are greatly tubular in their form. The common jimpson-weed or thorn-apple (*Datura stramonium*) and the trumpet-flower (*Bignonia radicans*) are among the most favoured by their visits, and after these, honey-suckle, the balsam of the gardens, and the wild species which grows on the borders of ponds, rivulets, and deep ravines; but every flower, down to the wild violet, affords them a certain portion of sustenance. Their food consists principally of insects, generally of the coleopterous order, these, together with some equally diminutive flies, being commonly found in their stomach. The first are procured within the flowers, but many of the latter on wing. The Humming-bird might therefore be looked upon as an expert fly-catcher. The nectar or honey which they sip from the different flowers, being of itself insufficient to support them, is used more as if to allay their thirst. I have seen many of these birds kept in partial confinement, when they were supplied with artificial flowers made for the purpose, in the corollas of which water with honey or sugar dissolved in it was placed. The birds were fed on these substances exclusively, but seldom lived many months, and on being examined after death, were found to be extremely emaciated. Others, on the contrary, which were supplied twice a-day with fresh flowers from the woods or garden, placed in a room with windows merely closed with moschetto gauze-netting, through which minute insects were able to enter, lived twelve months, at the expiration of which time their liberty was granted them, the person who kept them having had a long voyage to perform. The room was kept artificially warm during the winter months, and these, in Lower Louisiana, are seldom so cold as to produce ice. On examining an orange-tree which had been placed in the room where these

Humming-birds were kept, no appearance of a nest was to be seen, although the birds had frequently been observed caressing each other. Some have been occasionally kept confined in our Middle Districts, but I have not ascertained that any one survived a winter.

The Humming-bird does not shun mankind so much as birds generally do. It frequently approaches flowers in the windows, or even in rooms when the windows are kept open, during the extreme heat of the day, and returns, when not interrupted, as long as the flowers are unfaded. They are extremely abundant in Louisiana during spring and summer, and wherever a fine plant of the trumpet-flower is met with in the woods, one or more Humming-birds are generally seen about it, and now and then so many as ten or twelve at a time. They are quarrelsome, and have frequent battles in the air, especially the male birds. Should one be feeding on a flower, and another approach it, they are both immediately seen to rise in the air, twittering and twirling in a spiral manner until out of sight. The conflict over, the victor immediately returns to the flower.

If comparison might enable you, kind reader, to form some tolerably accurate idea of their peculiar mode of flight, and their appearance when on wing, I would say, that were both objects of the same colour, a large sphinx or moth, when moving from one flower to another, and in a direct line, comes nearer the Humming-bird in aspect than any other object with which I am acquainted.

Having heard several persons remark that these little creatures had been procured, with less injury to their plumage, by shooting them with water, I was tempted to make the experiment, having been in the habit of killing them either with remarkably small shot, or with sand. However, finding that even when within a few paces, I seldom brought one to the ground when I used water instead of shot, and was moreover obliged to clean my gun after every discharge, I abandoned the scheme, and feel confident that it can never have been used with material advantage. I have frequently secured some by employing an insect-net, and were this machine used with dexterity, it would afford the best means of procuring Humming-birds.

I have represented several of these pretty and most interesting birds, in various positions, feeding, caressing each other, or sitting on the slender stalks of the trumpet-flower and pluming themselves. The diversity of action and attitude thus exhibited, may, I trust, prove sufficient to present a faithful idea of their appearance and manners. A figure of the nest you will also find has been given ; it is generally placed low, on the horizontal branch of any kind of tree, seldom more than twenty feet from the ground. They are far from being particular in this matter, as I have often found a nest attached by one side only to a twig of a rose-bush, currant, or the strong

stalk of a rank weed, sometimes in the middle of the forest, at other times on the branch of an oak, immediately over the road, and again in the garden close to the walk.

This interesting gem of the feathered tribe proceeds as far north in summer as the 57th parallel. Dr. RICHARDSON obtained it on the plains of the Saskatchewan, and Mr. DRUMMOND found its nest near the sources of the Elk river. It does not occur on the Columbia river, where the Nootka Humming-bird is abundant. A few were seen by me in Labrador, and, on the other hand, I met with it entering the United States in crowds in the beginning of April, advancing eastward along the shores of the Mexican Gulf. The weather having become very cold one morning, many were picked up dead along the beaches, and those which bore up were so benumbed as almost to suffer the members of my party to take them with the hand. My friend Dr. BACHMAN has heard this species uttering a few sweet notes, sometimes when perched on a twig, and at other times on wing. The eggs measure half an inch in length by 4¼ lines in breadth.

HUMMING-BIRD, *Trochilus Colubris*, Wils. Amer. Orn., vol. ii. p. 26.

TROCHILUS COLUBRIS, Bonap. Syn., p. 98.

TROCHILUS COLUBRIS, NORTHERN HUMMING-BIRD, Swains. & Rich. F. Bor. Amer., vol. ii p. 323.

RUBY-THROATED HUMMING-BIRD, Nutt. Man., vol. i. p. 588.

RUBY-THROATED HUMMING-BIRD, *Trochilus colubris*, Aud. Orn. Biog., vol. i. p. 248; vol. v. p. 544.

Male, 3¼, 4½.

In summer, from Texas to lat. 57°, and in all intermediate districts east of the Rocky Mountains. Common. Migratory.

Adult Male.

Bill long, straight, subulate, depressed at the base, acute; upper mandible rounded, its edges overlapping. Nostrils basal, linear. Tongue very extensile, filiform, divided towards the end into two filaments. Feet very short and feeble; tarsus slender, shorter than the middle toe, partly feathered; fore toes united at the base; claws curved, compressed, acute.

Plumage compact, imbricated above and on the throat with metallic lustre, blended beneath. Wings long, narrow, a little incurved at the tip, the first quill longest. Tail forked when closed, when spread even in the middle and laterally rounded, of ten broad feathers, the outer curved inwards.

Bill and feet black. Iris of the same colour. Upper parts generally, including the two middle tail-feathers, green, with gold reflections. Quills and tail purplish-brown. Throat, sides of the head, and fore neck, carmine-

purple, spotted with black, varying to crimson, orange, and deep black. Sides of the same colour as the back; the rest of the under parts greyish-white, mixed with green.

Length 3½ inches, extent of wings 4¼; bill along the ridge ¾, along the gap ⅝; tarsus ⅛, toe ¼.

Adult Female.

The female differs from the male in wanting the brilliant patch on the throat, which is white, as are the under parts generally, and in having the three lateral tail-feathers tipped with the same colour.

Dimensions the same.

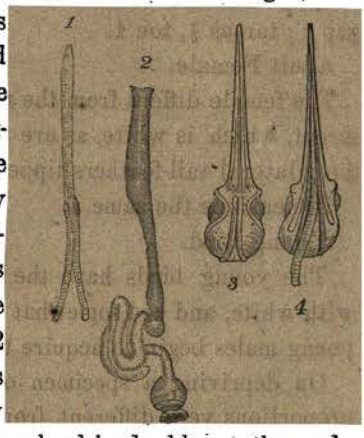
Young Bird.

The young birds have the under parts brownish-white, the tail tipped with white, and are somewhat lighter in their upper parts. In autumn the young males begin to acquire the red feathers of the throat.

On depriving a specimen of this bird of its feathers, one finds its proportions very different from what he may have previously imagined. Thus, the body is remarkably robust, of an ovate form, much deeper than broad, on account of the extreme size of the crest or keel of the sternum, which is so extended as to leave for the abdomen a space not more than a fifth of its own length. The feet, although very small, are yet proportionally as large as those of a Cormorant; the femur and tibia being relatively large, while the tarsus is extremely short, and the toes of moderate size, the anterior incapable of being widely spread, and the middle or third scarcely exceeding the two lateral; in which respect the foot has some resemblance to that of the Swifts. The hind toe is articulated remarkably high on the tarsus, it being placed very nearly at the height of one-third of its length. The bones of the wings are very short; the humerus and cubitus extremely so, although proportionally strong. The neck is very elongated, being 10 twelfths of an inch in length, whereas the body, including the coccyx, is only 9 twelfths. The head is rather large, depressed in front, with a deep hollow between the eyes, which are very large, and the bill is disproportionately elongated. The pectoral muscles are of extreme size, exceeding by much the entire bulk of the rest of the body with the neck and head, the height of the crest of the sternum being 4 twelfths, or nearly half the length of the body. The body of the sternum is remarkably flat, and so thin as to be almost perfectly transparent; it is narrow anteriorly, where it is 2¼ twelfths in breadth, but gradually enlarges to 4 twelfths; the posterior edge forms a semicircle, and is destitute of notch. The pubic bones almost meet in front, where they are cartilaginous. The heart is extraordinarily large, occupying half the length of the cavity of the body, of an elongated conical form, 3¼ twelfths long, and

2 twelfths in breadth at the base. The right lobe of the liver is much larger than the left, the former being 5 twelfths in length, the latter 4 twelfths.

The whole length of the head is 1¼ inches, of which the bill is 10 twelfths. The upper mandible is slightly concave beneath in its whole length, the lower a little more deeply concave, the edges of both thin, those of the lower erect and overlapped by the upper. The nostrils are covered by a very large projecting membranous flap, feathered above. The tongue is, to a certain extent, constructed precisely in the same manner as that of the Woodpeckers. The basi-hyal bone is 1½ twelfths long, the apo-hyal bones 2 twelfths, the apo-hyal and cerato-hyal together 1 inch 2 twelfths, the glosso-hyal or terminal bones 4½ twelfths. There is no uro-hyal bone, any more than in the Woodpeckers, and the glosso-hyal is double at the end. The horns of the hyoid bone are thus greatly elongated, recurving over the occiput, near the top of which they meet, and thence proceed directly forward, in mutual proximity, lodged in a deep and broad groove, along the middle of the forehead, until near the anterior part of the eye, where they terminate, fig. 3. The crura of the lower mandible, fig 4, do not meet until very near the tip, and from the inner and lower surface of each near the junction or angle, there proceeds backward a slender muscle, which is attached to the hyoid bone at the junction of the apo-hyal and cerato-hyal, whence it proceeds all the way to the tip of the latter, the muscle and bone being enclosed in a very delicate sheath, which is attached to the subcutaneous cellular tissue between the nostrils. The tongue, properly so called, moves in a sheath, as in the Woodpeckers; its length is 10 twelfths. When it is protruded, the part beyond this at the base appears fleshy, being covered with the membrane of the mouth forming the sheath, but the rest of its extent is horny, and presents the appearance of two cylinders united, with a deep groove above and another beneath, for the length of 3 twelfths; beyond which they become flattened, concave above, thin-edged and lacerated externally, thick-edged internally, and, although lying parallel and in contact, capable of being separated. This part, being moistened by the fluid of the slender salivary glands, and capable of being alternately exserted and retracted, thus forms an instrument for the prehension of small



insects, similar in so far to that of the Woodpeckers, although presenting a different modification in its horny extremity, which is more elongated and less rigid. All observers who have written on the tongue of the Humming-birds, have represented it as composed of two cylindrical tubes, and the prevalent notion has been that the bird sucks the nectar of flowers by means of these tubes. But both ideas are incorrect. There are, it is true, two cylindrical tubes, but they gradually taper away toward the point, and instead of being pervious form two sheaths for the two terminal parts or shafts of the glosso-hyal portion of the tongue, which run nearly to the tip, while there is appended to them externally a very thin-fringed or denticulate plate of horny substance. The bird obviously cannot suck, but it may thrust the tip of the tongue into a fluid, and by drawing it back may thus procure a portion. It is, however, more properly an organ for the prehension of small insects, for which it is obviously well adapted, and being exsertile to a great extent enables the bird to reach at minute objects deep in the tubes and nectaries of flowers. That a Humming-bird may for a time subsist on sugar and water, or any other saccharine fluid, is probable enough; but it is essentially an insect-hunter, and not a honey-sucker.

The œsophagus, fig. 2, is 1 inch 4 twelfths long, 1½ twelfths in width at the top, but toward the lower part of the neck enlarged to 1¾ twelfths. On entering the thorax, it contracts to ½ twelfth; and the proventriculus is 1¼ twelfths. The stomach is extremely small, of a roundish or broadly elliptical form, 1¼ twelfths in length, and 1 twelfth in breadth. The proventricular glands form a complete belt, 2 twelfths in breadth. The walls of the stomach are moderately muscular; the epithelium dense, with broad longitudinal rugæ, four on one side, three on the other, and of a pale red colour. In the stomach were fragments of small coleopterous insects. The intestine is 2 inches 2 twelfths in length, from 1¼ twelfths to ½ twelfth in width. It forms six curves, the duodenum returning at the distance of 3 twelfths. There are no cœca. The cloaca is very large and globular.

The trachea, fig. 1, is 9 twelfths long, being thus remarkably short on account of its bifurcating very high on the neck, for if it were to divide at the usual place, or just anteriorly to the base of the heart, it would be 4½ twelfths longer. In this respect it differs from that of all the other birds examined, with the exception of the Roseate Spoonbill, *Platalea Ajaja*, the trachea of which is in so far similar. The bronchi are exactly ½ inch in length. Until the bifurcation, the trachea passes along the right side, afterwards directly in front. There are 50 rings to the fork; and each bronchus has 34 rings. The breadth of the trachea at the upper part is scarcely more than ½ twelfth, and at the lower part considerably less. It is much flattened, and the rings are very narrow, cartilaginous, and placed

widely apart. The bronchial rings are similar, and differ from those of most birds in being complete. The two bronchi lie in contact for 2 twelfths at the upper part, being connected by a common membrane. The lateral muscles are extremely slender. The last ring of the trachea is four times the breadth of the rest, and has on each side a large but not very prominent mass of muscular fibres, inserted into the first bronchial ring. This mass does not seem to be divisible into four distinct muscles, but rather to resemble that of the Flycatchers, although nothing certain can be stated on this point.

The Trumpet-flower.

Bignonia radicans, *Willd.* Sp. Pl., vol. iii. p. 301. *Pursh*, Flor. Amer., vol. ii. p. 420.—Didynamia Angiospermia, *Linn.*—Bignoniæ, *Juss.*

This splendid species of *bignonia*, which grows in woods and on the banks of rivers in all the Middle and Southern States, climbing on trees and bushes, is distinguished by its pinnate leaves, with ovate, widely serrate, acuminate leaflets, and large scarlet flowers, of which the funnel-shaped tube of the corolla is thrice the length of the calyx. The pods are of a brown colour, from four to seven inches long, and contain a double row of kidney-shaped light brown seeds

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Genus II.—SELASPHORUS, *Swains.* RUFFED HUMMING-BIRD.

Bill long, straight, subulate, extremely slender, somewhat depressed at the base, acute; upper mandible with the dorsal line straight, the ridge narrow at the base, broad and convex toward the end, the sides convex, the edges overlapping, the tip acuminate; lower mandible with the angle very long and extremely narrow, the dorsal line straightish, the edges erect, the tip acuminate. Nostrils basal, linear. Head of ordinary size, oblong; neck short; body short and ovate. Feet very small; tarsus very short, feathered more than half-way; toes small, the lateral equal, the third not

much longer, the first a little shorter than the lateral; claws rather long, arched, compressed, very acute. Plumage soft and blended; elongated feathers on the sides of the neck in the males. Wings rather short, falcate, pointed, the second primary longest. Tail rather long, broad, graduated.

RUFF-NECKED HUMMING-BIRD.

SELASPHORUS RUFUS, *Gmel.*

PLATE CCLIV.—MALES AND FEMALE.

This charming Humming-bird was discovered by the great navigator, Captain COOK, who found it abundant at Nootka Sound. It does not appear to have been seen by Dr. RICHARDSON or Mr. DRUMMOND in the northern parts of America, traversed by those most zealous and highly talented naturalists. As no account has hitherto been given of its habits, the following notices from my friends, Mr. NUTTALL and Mr. TOWNSEND, will, I doubt not, prove highly interesting.

"We began," says the first of these enterprising travellers, "to meet with this species near the Blue Mountains of the Columbia river, in the autumn, as we proceeded to the west. These were all young birds, and were not very easily distinguished from those of the common species of the same age. We now for the first time (April 16) saw the males in numbers, darting, burring, and squeaking in the usual manner of their tribe; but when engaged in collecting its accustomed sweets in all the energy of life, it seemed like a breathing gem, or magic carbuncle of glowing fire, stretching out its gorgeous ruff, as if to emulate the sun itself in splendour. Towards the close of May, the females were sitting, at which time the males were uncommonly quarrelsome and vigilant, darting out at me as I approached the tree probably near the nest, looking like an angry coal of brilliant fire, passing within very little distance of my face, returning several times to the attack, sinking and darting with the utmost velocity, at the same time uttering a curious reverberating sharp bleat, somewhat similar to the quivering twang of a dead twig, yet also so much like the real bleat of some small quadruped,

Ruff-necked Humming bird.

1. 2. Males 3. Female.

Cleome heptaphylla.

Drawn from Nature by J.J.Audubon FRSFLS. Lith.d Printed & Col.d by J.T.Bowen, Phila.a

that for some time I searched the ground instead of the air, for the actor in the scene. At other times, the males were seen darting up high in the air, and whirling about each other in great anger, and with much velocity. After these manœuvres the aggressor returned to the same dead twig, where for days he regularly took his station with all the courage and angry vigilance of a King-bird. The angry hissing or bleating note of his species seems something like *wht 't't't't sh vee*, tremulously uttered as it whirls and sweeps through the air, like a musket-ball, accompanied also by something like the whirr of the Night-hawk. On the 29th of May, I found a nest of this species in a forked branch of the Nootka Bramble, *Rubus Nutkanus*. The female was sitting on two eggs, of the same shape and colour as those of the common species. The nest also was perfectly similar, but somewhat deeper. As I approached, the female came hovering round the nest, and soon after, when all was still, she resumed her place contentedly."

Mr. TOWNSEND'S note is as follows :—"Nootka Sound Humming-bird, *Trochilus rufus*, *Ah-puets-Rinne* of the Chinooks. On a clear day the male may be seen to rise to a great height in the air, and descend instantly near the earth, then mount again to the same altitude as at first, performing in the evolution the half of a large circle. During the descent it emits a strange and astonishingly loud note, which can be compared to nothing but the rubbing together of the limbs of trees during a high wind. I heard this singular note repeatedly last spring and summer, but did not then discover to what it belonged. I did not suppose it to be a bird at all, and least of all a Humming-bird. The observer thinks it almost impossible that so small a creature can be capable of producing so much sound. I have never observed this habit upon a dull or cloudy day."

Mr. NUTTALL having presented me with the nest of this species attached to the twig to which the bird had fastened it, my amiable friend Miss MARTIN has figured it for me, as well as the plant, about which these lovely creatures are represented. The nest, which measures two inches and a quarter in height, and an inch and three quarters in breadth, at the upper part, is composed externally of mosses, lichens, and a few feathers, with slender fibrous roots interwoven, and lined with fine cottony seed-down.

TROCHILUS RUFUS, Gmel. Syst. Nat., vol. i. p. 497.

TROCHILUS (SELASPHORUS) RUFUS, *Cinnamon or Nootka Humming-bird*, Swains and Rich. F. Bor. Amer., vol. ii. p. 324.

RUFFED-NECKED HUMMING-BIRD, *Trochilus rufus*, Aud. Orn. Biog., vol. iv. p. 555.

Male, $3\frac{7}{12}$, wing, $1\frac{7}{12}$.

From California along the north-west coast to Nootka Sound. Abundant. Migratory.

Adult Male.

Bill long, straight, subulate, somewhat depressed at the base, acute; upper mandible with the dorsal line straight, the ridge narrow at the base, broad and convex toward the end, the sides convex, the edges overlapping, the tip acuminate; lower mandible with the angle very long and extremely narrow, the dorsal line straight, the edges erect, the tip acuminate. Nostrils basal, linear.

Head of ordinary size, oblong; neck short; body slender. Feet very small; tarsus very short, feathered more than half-way down, toes small; the lateral equal, the middle toe not much longer, the hind toe a little shorter than the lateral, anterior toes united at the base; claws rather long, arched, compressed, laterally grooved, very acute.

Plumage soft and blended; feathers on the throat, fore part and sides of the neck oblong-obovate, with the filaments towards the end thickened and flattened, with metallic gloss, those on the sides of the neck elongated and erectile. Wings rather short, extremely narrow, falcate, pointed; the primaries rapidly graduated, the second being longest, but only slightly longer than the first; these two quills taper to a point; the rest are broader, and gradually become less pointed; the secondaries are extremely short, and only five in number. Tail rather long, broad, graduated, the lateral feathers four and a half twelfths of an inch shorter than the central; the latter are extremely broad, measuring four and a half twelfths across, and the rest gradually diminish to the lateral, which are very narrow; all obtusely pointed.

Bill brownish-black; toes brown, claws dusky. The general colour of the upper parts is bright cinnamon or reddish-orange; the head bronzed green; the wings dusky, the coverts glossed with green, the primaries with purplish; each of the tail-feathers has a narrow longitudinal lanceolate median streak toward the end. The loral space, a narrow band over the eye, another beneath it, and the auriculars are reddish-orange; the scale-like feathers of the throat and sides of the neck are splendent fire-red, purplish-red, yellowish-red, greenish-yellow or yellowish-green, according to the light in which they are viewed; behind them, on the lower part of the neck, is a broad band of reddish-white; the rest of the lower parts are like the upper, the abdomen inclining to white.

Length to end of tail $3\frac{7}{12}$ inches; bill along the ridge $\frac{7}{12}$, along the edge of lower mandible $\frac{9}{12}$; wing from flexure $1\frac{7}{12}$; tail $\frac{3}{12}$; tarsus $\frac{1}{12}$; hind toe $\frac{1}{12}$; its claw $\frac{1}{12}$; middle toe $\frac{2}{12}$, its claw $\frac{1}{12}$.

Adult Female.

The female has the bill and feet coloured as in the male. The upper parts are gold-green, the head inclining to brown ; the wings as in the male ; the tail feathers reddish-orange at the base, brownish-black toward the end, the tip white. The lower parts are white, tinged with rufous, of which colour, especially, are the sides ; the throat marked with roundish spots of metallic greenish-red.

Length to end of tail $3\frac{7}{12}$ inches ; bill along the ridge $\frac{11}{12}$; wing from flexure $1\frac{6}{12}$; tail $1\frac{1}{12}$.

The above descriptions are from two individuals shot by Mr. TOWNSEND on the " Columbia river, 30th May, 1835." A "young male, Columbia river, 29th May, 1835," resembles the female as above described, differing only in having the metallic spots on the throat larger. A "young female, Columbia river, June 10th, 1835," differs from the adult only in wanting the metallic spots on the throat, which is spotted with greenish-brown.

CLEOME HEPTAPHYLLA.

The beautiful plant represented in the plate belongs to *Tetradynamia Siliquosa* of the Linnæan arrangement, and to the genus *Cleome*, characterized by having three nectariferous glandules at each corner of the calyx, the lower excepted ; all the petals ascending ; the germen stipitate ; the siliqua unilocular, two-valved. The species, *C. heptaphylla*, is distinguished by its septenate leaves, of which the leaflets are lanceolate, acuminate, and of a deep green colour. It grows in South Carolina and Georgia.

FAMILY XXV.—ALCEDINÆ. KINGFISHERS.

Bill long, straight, stout, broader than high at the base, much compressed, tapering to a rather acute point, and gap-line commencing beneath the middle of the eyes. Head large, ovato-oblong; neck short; body stout. Tarsus extremely short; anteriorly scaly; anterior toes united for more than half their length, outer longer than inner, hind toe small. Claws stout, compressed, arched, very acute. Plumage rather compact. Wings rather long, pointed. Tail various, of twelve feathers. Tongue very short, fleshy, with the sides parallel, the tip tapering to a bluntish point. Roof of upper mandible moderately concave, with a median ridge and oblique lateral grooves. Œsophagus very wide, without crop; stomach very large, round, with its muscular coat very thin; the epithelium dense, very thin, with tortuous rugæ; intestine very long, extremely slender; no cœca; cloaca very large, globular. Trachea with three pairs of inferior laryngeal muscles.

Genus I.—ALCEDO, *Linn.* KINGFISHER.

Bill long, straight, rather stout, broader than high at the base, but suddenly much compressed, tapering to an acute point; upper mandible with the dorsal line almost straight, the ridge distinct, but somewhat flattened, the edges nearly straight, without notch, the tip acute; lower mandible with the angle of moderate length and narrow, the dorsal line ascending and nearly straight; gap-line commencing beneath the middle of the eye; nostrils basal, near the ridge, linear, obliquely ascending, half closed by a bare membrane. Head large, oblong; neck short; body robust. Feet very short; tarsus extremely short, roundish, anteriorly faintly scaly; anterior toes cohered for a great part of the length, outer longer than inner, first small. Claws rather short, stout, arched, acute. Plumage rather compact, more blended above. Wings long, pointed, with the second and third quills longest. Tail short, even, of twelve rounded feathers.

Belted Kingfisher

Alcedo Alcyon

Drawn from Nature by J. J. Audubon, F.R.S. F.L.S.

Lith. & Col.d by Bowen & Co. Philad.a

THE BELTED KINGFISHER.

ALCEDO ALCYON, *Linn.*

PLATE CCLV.—MALE AND FEMALE.

You must not suppose, good-natured reader, that the lives which I try to write, are short or lengthy, according to the natural dimensions of the objects themselves; for if, with the representation of a large bird, I present you with a long history of its habits, it is merely because that bird, being perhaps more common, and therefore more conspicuous, I have had better and more frequent opportunities of studying them. This happens to be the case with the bird which I proceed to describe.

The Belted Kingfisher!—Now, kind reader, were I infected with the desire of giving new names to well-known objects, you may be assured that, notwithstanding the partly appropriate name given to this bird, I should call it, as I think it ought to have been called, the *United States Kingfisher*. My reason for this will, I hope, become apparent to you, when I say that it is the only bird of its genus found upon the inland streams of the Union. Another reason of equal force might be adduced, which is, that, although the males of all denominations have, from time immemorial, obtained the supremacy, in this particular case the term Belted applies only to the female—the male being destitute of the belt or band by which she is distinguished.

This species is a constant resident in the States of Louisiana, Mississippi, Arkansas, and all the districts that lie to the south of North Carolina. Its inland migrations along the windings of our noble rivers extend far and wide, over the whole of the United States. In all those portions which I have visited it also breeds, although it returns to the south from many parts during severe winters.

The flight of this bird is rapid, and is prolonged according to its necessities, extending at times to considerable distances, in which case it is performed high in the air. When, for instance, the whole course of one of our northern rivers becomes frozen, the Kingfisher, instead of skimming closely over the surface that no longer allows it to supply itself with food, passes high above the tallest trees, and takes advantage of every short cut which the situation of the river affords. By this means it soon reaches a milder climate. This is also frequently the case, when it seems tired of the kind of fish that occurs in a lake, and removes to another in a direct line, passing over the

forests. not unfrequently by a course of twenty or thirty miles towards the interior of the country. Its motions when on wing consist of a series of flaps, about five or six in number, followed by a direct glide, without any apparent undulation. It moves in the same way when flying closely over the water.

If, in the course of such excursions, the bird passes over a small pool, it suddenly checks itself in its career, poises itself in the air, like a Sparrow Hawk or Kestril, and inspects the water beneath, to discover whether there may be fishes in it suitable to its taste. Should it find this to be the case, it continues poised for a few seconds, dashes spirally headlong into the water, seizes a fish, and alights on the nearest tree or stump, where it swallows its prey in a moment.

The more usual range of the Belted Kingfisher, however, is confined to the rivers and creeks that abound throughout the United States; all of which, according to the seasons, are amply supplied with various fishes, on the fry of which this bird feeds. It follows their course up to the very source of the small rivulets; and it is not unusual to hear the hard, rapid, rattling notes of our Kingfisher, even amongst the murmuring cascades of our higher mountains. When the bird is found in such sequestered situations, well may the angler be assured that trout is abundant. Mill-ponds are also favourite resorts of the Kingfisher, the usual calmness of the water in such places permitting it to discover its prey with ease. As the freshets are proportionally less felt on the adjoining shores, the holes dug in the earth or sand by this species, in which it deposits its eggs, are generally found in places not far from a mill worked by water.

I have laid open to my view several of these holes, in different situations and soils, and have generally found them to be formed as follows. The male and female, after having fixed upon a proper spot, are seen clinging to the bank of the stream in the manner of Woodpeckers. Their long and stout bills are set to work, and as soon as the hole has acquired a certain depth, one of the birds enters it, and scratches out the sand, earth or clay, with its feet, striking meanwhile with its bill to extend the depth. The other bird all the while appears to cheer the labourer, and urge it to continue its exertions; and, when the latter is fatigued, takes its place. Thus, by the co-operation of both, the hole is dug to the depth of four, five, or sometimes six feet, in an horizontal direction, at times not more than eighteen inches below the surface of the ground, at others eight or ten feet. At the Chicasaw Bluffs, on the Mississippi, I have seen some of these holes more than fifty feet below the surface, but generally beyond reach of the highest freshets. The hole is just large enough to admit the passage of a single bird at a time. The end is rounded and finished in the form of a common oven, to allow the

pair or the whole brood to turn round in it at ease. Here, on a few sticks and feathers, the eggs are deposited to the number generally of six. They are pure white. Incubation continues for sixteen days. In the Middle States, these birds seldom raise more than one brood in the year, but in the southern usually two. Incubation is performed by both parents, which evince great solicitude for the safety of their young. The mother sometimes drops on the water, as if severely wounded, and flutters and flounders as if unable to rise from the stream, in order to induce the intruder to wade or swim after her, whilst her mate, perched on the nearest bough, or even on the edge of the bank, jerks his tail, erects his crest, rattles his notes with angry vehemence, and then springing off, passes and repasses before the enemy, with a continued cry of despair.

I have not been able to ascertain whether or not the young are fed with macerated food disgorged by the parents into their bills, but I have reason to think so, and I have always observed the old ones to swallow the fishes which they had caught, before they entered the hole. The young are, however, afterwards fed directly on the entire fish; and I have frequently seen them follow the parent birds, and alight on the same branch, flapping their wings, and calling with open bill for the food just taken out of the water, when the petition was seldom denied.

The Kingfisher resorts to the same hole, to breed and roost, for many years in succession. On one occasion, when I attempted to secure one of these birds, long after night had closed, I tried in vain. The first time I fitted a small net bag to the entrance, and returned home. Next morning the bird had scratched a passage under the net, and thus escaped. The following evening I saw it enter the hole, and having procured a stick that filled the entrance for upwards of a foot, I felt certain of obtaining it; but before I reached the place next day, it had worked its way out. After this, I abandoned my attempt, although the bird continued to repose in the same hole.

No superstitious notions exist in the United States respecting this species. The flesh is extremely fishy, oily, and disagreeable to the taste. On the contrary, the eggs are fine eating.

I was ready to put my pen aside, kind reader, when, on consulting my journals, all of which are now at hand, I happened to read, that I have seen instances of this bird's plunging into the sea after small fry, at Powles Hook, in the bay opposite to the city of New York. I am not aware that this is a common occurrence.

Mr. TOWNSEND found this species on the Missouri, the Rocky Mountains, and the Columbia river. Dr. RICHARDSON informs us that it frequents all the large rivers in the Fur Countries up to the 67th degree of latitude, and I

have met with it from within the Texas to the shores of Labrador. I have also seen it on the higher and sandy Keys of the Floridas, where, however, I am not sure that it breeds. I have seen this bird fishing in salt water in a great number of instances. It is extremely hardy, and those individuals, which migrate northward to breed, seldom return towards our Southern States, where they spend the winter, until absolutely forced to do so by the great severity of the weather. The eggs measure $1\frac{1}{4}$ inches in length, by 1 inch in breadth, and are thus of a roundish form. Dr. BREWER of Boston informs me, that it abounds on the borders of all the ponds and rivers in Massachusetts, and that he found a nest containing two eggs on a hard gravel bank, on the borders of Charles river, Cambridge.

BELTED KINGFISHER, *Alcedo Alcyon*, Wils. Amer. Orn., vol. iii. p. 59.
ALCEDO ALCYON, Bonap. Syn., p. 48.
ALCEDO ALCYON, *Belted Kingfisher*, Swains. and Rich. F. Bor. Amer., vol. ii. p. 339.
BELTED KINGFISHER, Nutt. Man., vol. i. p. 594.
BELTED KINGFISHER, *Alcedo Alcyon*, Aud. Orn. Biog., vol. i. p. 394; vol. v. p. 548.

Male, $12\frac{1}{2}$, 20.

Breeds from Texas all over the United States, to the Fur Countries, Missouri, Rocky Mountains, and Columbia river. Common. Resident.

Adult Male.

Bill long, straight, tetragonal, tapering to an acute point, compressed towards the end; upper mandible keeled, with the dorsal line straight, the edges overlapping; lower mandible with the dorsal line slightly convex, the tip ascending; gap-line extending to beneath the eyes. Nostrils basal, dorsal, oblong, oblique, half-closed by a bare membrane. Head large, neck short, body robust. Feet very short; tarsus roundish, anteriorly scutellate, half the length of the middle toe; outer and middle toes nearly equal, inner much shorter, hind toe small; claws, rather strong, arched, acute, channelled beneath.

Plumage compact. Feathers of the head long, narrow, rather loose, pointed, and erectile, in the form of a longitudinal crest, of which the anterior feathers are longest. Wings longish, the third primary longest. Tail short, even, of twelve broad rounded feathers.

Bill brownish-black, light greenish-blue at the base. Iris hazel. Feet greyish-blue; claws black. Head, cheeks, hind neck and upper parts generally light blue, the shaft of each feather blackish. A white spot before the eye, and a slight streak of the same colour on the under eyelid. Quills brownish-black, the base of the primaries barred with white, the secondaries blue on the outer web. Two middle tail-feathers blue, as are the outer edges

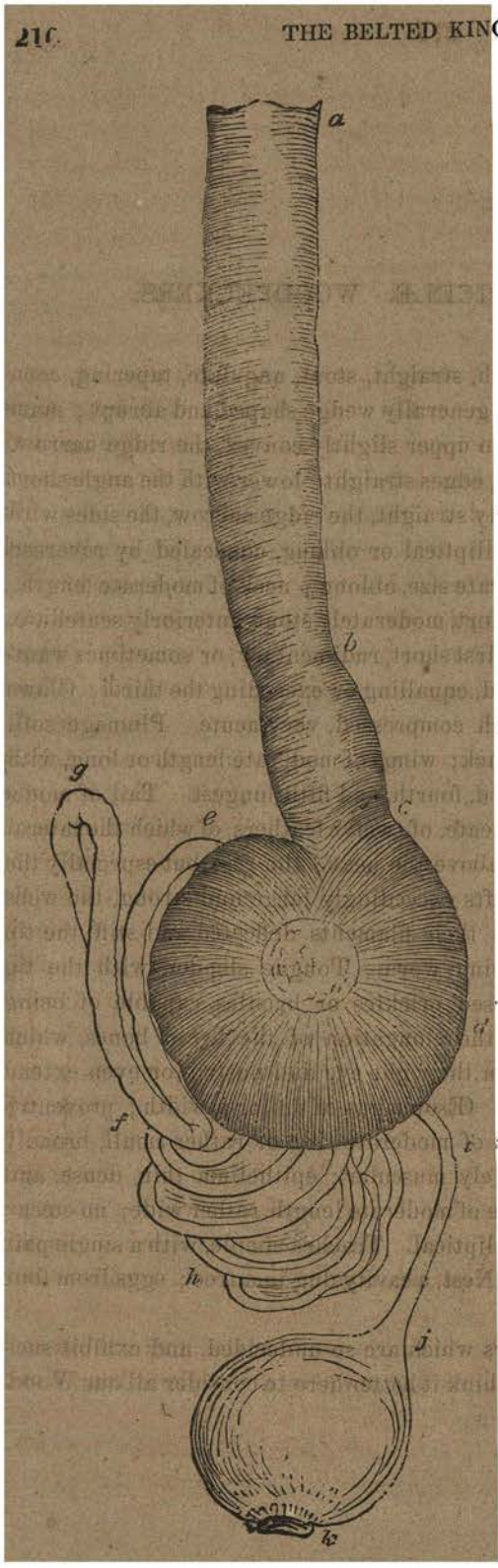
of the rest, excepting the outermost; all, excepting the two middle ones brownish-black, barred with white. A broad band of white across the neck, broader anteriorly and including the chin and throat. A band of blue across the fore part of the breast. The rest of the under parts white, excepting the sides, which are mottled with blue.

Length 12½ inches, extent of wings 20; bill along the ridge 2, along the gap 2½; tarsus ½, middle toe $1\frac{1}{12}$.

Adult Female.

The blue of the female is much duller. The band on the upper part of the breast is of dull greyish-blue and light red intermixed; below this is a narrow band of white, and across the middle of the breast a broad band of yellowish-red, of which colour also are the sides. The rest of the under parts are white, tinged with red.

An adult male preserved in spirits measures to end of tail 13½ inches, to end of wings 11½, to end of claws $10\frac{4}{12}$; wing from flexure 6½; tail 4. The roof of the mouth is rather flat behind, with the sides sloping upwards; it has two short longitudinal ridges, and is covered with minute papillæ. The posterior aperture of the nares is linear behind, oblong before, ½ inch in length. The anterior part of the palate is moderately concave, with a median ridge and numerous oblique lateral grooves. The lower mandible is also moderately concave, with a prominent middle line. The tongue is very short, only 5 twelfths in length, 2½ twelfths in breadth, fleshy, with two lateral prominent lamellæ at the base, its upper surface slightly convex, its sides parallel until 2 twelfths from the tip, when it tapers abruptly to a bluntish point. The breadth of the mouth is 11½ twelfths. The œsophagus, *a b c*, is 5¾ inches long, of the uniform width of 7 twelfths; its parietes very thin, the inner coat thrown into longitudinal rugæ. The liver is large, its left lobe much smaller than the other, the former being 1 inch 11 twelfths in length, the latter 1 inch 4 twelfths. There is no gall-bladder. The stomach, *c d e*, is very large, roundish, a little compressed, its diameter 1 inch 7 twelfths. The proventricular glands are extremely small, and occupy a belt 5 twelfths in breadth. The muscular coat of the stomach is very thin, but composed of strong fasciculi; the middle coat is nearly of equal thickness; internally there is a complete epithelium, which, however, although tough, is very thin, almost membranous, and raised into numerous tortuous rugæ, without any part being thicker than another. The pylorus has six marginal roundish fleshy papillæ. The duodenum, *e f g*, presents the usual curvature, being folded back upon itself at the distance of 1 inch 8 twelfths; the intestine, *g h i*, then forms several convolutions, and is of great length, but very narrow, and disposed in 24 folds. Its length is 3 feet 10 inches, its width



from 1½ twelfths to 1 twelfth. The cloaca, *j k*, is globular, 1 inch in diameter. There are *no cæca;* the rectum in its interior part has a width of only ½ twelfth.

The trachea is 4 inches 1 twelfth long, 3¾ twelfths in breadth at the top, rapidly decreasing, so that at the distance of 1 inch to be 2½ twelfths, and at the lower part 2 twelfths. Its rings are firm, slightly flattened, excepting those at the top, of which about 12 are cartilaginous. There are 72 rings, the lowest entire ring very large, with a middle partition. The lateral muscles are very slender, as are the sterno-tracheal; and there is a very large inferior laryngeal muscle inserted into the first bronchial ring, as well as into the last ring of the trachea. The bronchi are rather short and narrow, of about 15 half rings. The inferior laryngeal muscles may be divided into three portions, an anterior, a middle, and a posterior; and thus supply a desideratum, no bird having hitherto been examined in which there are four inferior laryngeal muscles, including the sterno-tracheal slip.

FAMILY XXVI.—PICINÆ. WOODPECKERS.

Bill long or of moderate length, straight, stout, angulate, tapering, compressed toward the tip, which is generally wedge-shaped and abrupt; mandibles nearly equal, outline of the upper slightly convex, the ridge narrow, sides sloping, with a lateral ridge, edges straight; lower with the angle short and narrow, the dorsal line nearly straight, the ridge narrow, the sides with a faint ridge. Nostrils basal, elliptical or oblong, concealed by reversed bristly feathers. Head of moderate size, oblong; neck of moderate length; body stout. Legs short; tarsus short, moderately stout, anteriorly scutellate, scaly behind; toes usually four, first short, rudimentary, or sometimes wanting, fourth very long and reversed, equalling or exceeding the third. Claws large, strong, much curved, much compressed, very acute. Plumage soft, blended, rather compact on the back; wings of moderate length or long, with the first quill very small, the third, fourth, and fifth longest. Tail of moderate length, much rounded or cuneate, of twelve feathers, of which the lateral are extremely small, and placed above the next; the rest, but especially the three middle pairs, with the shafts exceedingly large and strong, the webs narrowed toward the end, with their filaments deflected and stiff, the tip pointed or emarginate from being worn. Tongue slender, with the tip horny and furnished with reversed prickles or bristles, capable of being protruded to a great length by the elongation of the hyoid bones, which curve over the head to between the right eye and nostril, or even extend round a great part of that eye. Œsophagus of uniform width; proventriculus extremely large; stomach of moderate size, or rather small, broadly elliptical or roundish, moderately muscular; epithelium thin, dense, and longitudinally rugous; intestine of moderate length, rather wide; no cœca; cloaca very large, globular, or elliptical. Trachea simple, with a single pair of inferior laryngeal muscles. Nest, a cavity dug in a tree; eggs from four to six, elliptical, white.

The groups present characters which are so undecided, and exhibit such gradual approximations, that I think it better here to consider all our Woodpeckers as of one genus.

Genus I.—PICUS, *Linn.* WOODPECKER.

Character as above.

Bill straight, with the angles prominent.

IMPERIAL WOODPECKER.

Picus imperialis, *Gould.*

(Not figured)

The following note, which I have received from Mr. Townsend, refers to this splendid Woodpecker. "On the 14th of August, 1834, I saw several specimens of a large black Woodpecker, about the size of *Picus principalis*. A broad band of white appeared to extend transversely across the wings and back. It inhabited the tall pine trees, and was very shy. The note was almost exactly that of the Red-headed Woodpecker, so much so that at first Mr. Nuttall and myself were both deceived by it. I lingered behind the party, which at that time was travelling rapidly, and at last got a shot at one of them with slugs, my large shot having been entirely expended. The bird fell wounded into a thicket at a considerable distance. I searched for an hour, without finding it, and was at last compelled to relinquish it and follow the party, which had been leaving me at a rapid trot, to find my way as I best could, and keep out of the reach of Indians, who were dogging us continually. Who can describe the chagrin and positive misery of a poor fellow in my then situation!

"The only account of this species that I have met with is the following, extracted from the 'Proceedings of the Committee of Science and Correspondence of the Zoological Society of London,' Part II. 1832, p. 140.—"Specimens were exhibited of a species of *Woodpecker*, hitherto undescribed, which has recently been obtained by Mr. Gould from that little explored

district of California, which borders the territory of Mexico The exhibition was accompanied by a communication from Mr. GOULD, in which, after some general remarks on the *Picidæ*, and their geographical distribution, he referred to the species before the Committee as possessing the characters of the genus *Picus* in their most marked development, together with the greatest size hitherto observed in that group. In this respect it as far exceeds the *Ivory-billed Woodpecker* of the United States, *Picus principalis*, as the latter does the *Picus martius* of Europe. Mr. GOULD described it as the

"*Picus imperialis.* Mas. Pic. ater, virescenti-splendens; cristo elongata occipitali coccinèa; macula triangulari interscapulari, remigibus secundariis, primariarumque (præter terium quatuorve exteriorum) rachibus internis albis; rostro eburneo.

"Fœm. Paullo minor; crista occipitali cum corpore concolore.

"Longitudo manis, 2 ped.; alæ (clausæ), 1 ped.; caudæ, 10 unc.; tarsi vix 2 unc.; digiti externi portici, eadem ac tarsi, ungues validissimi, arcuati; rostrum exacte cuneiforme, a rictu ad apice 4 unc. long., ad basin 1 unc. latum.

"This species is readily distinguishable from the *Pic. principalis* by its much larger size; by the length of its occipital crest, the pendent silky feathers of which measure nearly four inches; by the absence of the white stripe which ornaments the neck of that bird, and by the bristles which cover its nostrils being black, whereas those of the *Pic. principalis* are white."

PICUS IMPERIALIS, Gould, Proceed. of Com. Sc. and Corresp. of Zool. Soc. of Lond., part ii. p. 140.

IMPERIAL WOODPECKER, *Picus imperialis*, Aud. Orn. Biog., vol. v. p. 313.

Glossy greenish-black; the elongated occipital crest scarlet; a triangular spot on the fore part of the back; the secondary quills, and the inner webs of most of the primaries, white: bill yellowish-white. Female similar, but without red on the head.

Male, 24, wing, 12.

Rocky Mountains and North California.

THE IVORY-BILLED WOODPECKER.

PICUS PRINCIPALIS, *Linn.*

PLATE CCLVI.—MALE AND FEMALES.

I have always imagined, that in the plumage of the beautiful Ivory-billed Woodpecker, there is something very closely allied to the style of colouring of the great VANDYKE. The broad extent of its dark glossy body and tail, the large and well-defined white markings of its wings, neck, and bill, relieved by the rich carmine of the pendent crest of the male, and the brilliant yellow of its eye, have never failed to remind me of some of the boldest and noblest productions of that inimitable artist's pencil. So strongly indeed have these thoughts become ingrafted in my mind, as I gradually obtained a more intimate acquaintance with the Ivory-billed Woodpecker, that whenever I have observed one of these birds flying from one tree to another, I have mentally exclaimed, "There goes a Vandyke!" This notion may seem strange, perhaps ludicrous, to you, good reader, but I relate it as a fact, and whether or not it may be found in accordance with your own ideas, after you have inspected the plate in which is represented this splendid species of the Woodpecker tribe, is perhaps of little consequence.

The Ivory-billed Woodpecker confines its rambles to a comparatively very small portion of the United States, it never having been observed in the Middle States within the memory of any person now living there. In fact, in no portion of these districts does the nature of the woods appear suitable to its remarkable habits.

Descending the Ohio, we meet with this splendid bird for the first time near the confluence of that beautiful river and the Mississippi; after which, following the windings of the latter, either downwards toward the sea, or upwards in the direction of the Missouri, we frequently observe it. On the Atlantic coast, North Carolina may be taken as the limit of its distribution, although now and then an individual of the species may be accidentally seen in Maryland. To the westward of the Mississippi, it is found in all the dense forests bordering the streams which empty their waters into that majestic river, from the very declivities of the Rocky Mountains. The lower parts of the Carolinas, Georgia, Alabama, Louisiana, and Mississippi, are, however, the most favourite resorts of this bird, and in those States it constantly resides, breeds, and passes a life of peaceful enjoyment, finding

Ivory-billed Woodpecker.

1. Male. 2. Female.

Drawn from Nature by J. J. Audubon F.R.S.F.L.S.

Lith.d Printed & Col.d by J. T. Bowen, Philad.a

a profusion of food in all the deep, dark, and gloomy swamps dispersed throughout them.

I wish, kind reader, it were in my power to present to your mind's eye the favourite resort of the Ivory-billed Woodpecker. Would that I could describe the extent of those deep morasses, overshadowed by millions of gigantic dark cypresses, spreading their sturdy moss-covered branches, as if to admonish intruding man to pause and reflect on the many difficulties which he must encounter, should he persist in venturing farther into their almost inaccessible recesses, extending for miles before him, where he should be interrupted by huge projecting branches, here and there the massy trunk of a fallen and decaying tree, and thousands of creeping and twining plants of numberless species! Would that I could represent to you the dangerous nature of the ground, its oozing, spongy, and miry disposition, although covered with a beautiful but treacherous carpeting, composed of the richest mosses, flags, and water-lilies, no sooner receiving the pressure of the foot than it yields and endangers the very life of the adventurer, whilst here and there, as he approaches an opening, that proves merely a lake of black muddy water, his ear is assailed by the dismal croaking of innumerable frogs, the hissing of serpents, or the bellowing of alligators! Would that I could give you an idea of the sultry pestiferous atmosphere that nearly suffocates the intruder during the meridian heat of our dogdays, in those gloomy and horrible swamps! But the attempt to picture these scenes would be vain. Nothing short of ocular demonstration can impress any adequate idea of them.

How often, kind reader, have I thought of the difference of the tasks imposed on different minds, when, travelling in countries far distant from those where birds of this species and others as difficult to be procured are now and then offered for sale in the form of dried skins, I have heard the amateur or closet-naturalist express his astonishment that half-a-crown was asked by the person who had perhaps followed the bird when alive over miles of such swamps, and after procuring it, had prepared its skin in the best manner, and carried it to a market thousands of miles distant from the spot where he had obtained it. I must say, that it has at least grieved me as much as when I have heard some idle fop complain of the poverty of the Gallery of the Louvre, where he had paid nothing, or when I have listened to the same infatuated idler lamenting the loss of his shilling, as he sauntered through the Exhibition Rooms of the Royal Academy of London, or any equally valuable repository of art. But, let us return to the biography of the famed Ivory-billed Woodpecker.

The flight of this bird is graceful in the extreme, although seldom prolonged to more than a few hundred yards at a time, unless when it has to

cross a large river, which it does in deep undulations, opening its wings at first to their full extent, and nearly closing them to renew the propelling impulse. The transit from one tree to another, even should the distance be as much as a hundred yards, is performed by a single sweep, and the bird appears as if merely swinging itself from the top of the one tree to that of the other, forming an elegantly curved line. At this moment all the beauty of the plumage is exhibited, and strikes the beholder with pleasure. It never utters any sound whilst on wing, unless during the love-season; but at all other times, no sooner has this bird alighted than its remarkable voice is heard, at almost every leap which it makes, whilst ascending against the upper parts of the trunk of a tree, or its highest branches. Its notes are clear, loud, and yet rather plaintive. They are heard at a considerable distance, perhaps half a mile, and resemble the false high note of a clarionet. They are usually repeated three times in succession, and may be represented by the monosyllable *pait, pait, pait.* These are heard so frequently as to induce me to say that the bird spends few minutes of the day without uttering them, and this circumstance leads to its destruction, which is aimed at, not because (as is supposed by some) this species is a destroyer of trees, but more because it is a beautiful bird, and its rich scalp attached to the upper mandible forms an ornament for the war-dress of most of our Indians, or for the shot-pouch of our squatters and hunters, by all of whom the bird is shot merely for that purpose.

Travellers of all nations are also fond of possessing the upper part of the head and the bill of the male, and I have frequently remarked, that on a steamboat's reaching what we call a *wooding-place,* the *strangers* were very apt to pay a quarter of a dollar for two or three heads of this Woodpecker. I have seen entire belts of Indian chiefs closely ornamented with the tufts and bills of this species, and have observed that a great value is frequently put upon them.

The Ivory-billed Woodpecker nestles earlier in spring than any other species of its tribe. I have observed it boring a hole for that purpose in the beginning of March. The hole is, I believe, always made in the trunk of a live tree, generally an ash or a hackberry, and is at a great height. The birds pay great regard to the particular situation of the tree, and the inclination of its trunk; first, because they prefer retirement, and again, because they are anxious to secure the aperture against the access of water during beating rains. To prevent such a calamity, the hole is generally dug immediately under the junction of a large branch with the trunk. It is first bored horizontally for a few inches, then directly downwards, and not in a spiral manner, as some people have imagined. According to circumstances, this cavity is more or less deep, being sometimes not more than ten inches,

whilst at other times it reaches nearly three feet downwards into the core of the tree. I have been led to think that these differences result from the more or less immediate necessity under which the female may be of depositing her eggs, and again have thought that the older the Woodpecker is, the deeper does it make its hole. The average diameter of the different nests which I have examined was about seven inches within, although the entrance, which is perfectly round, is only just large enough to admit the bird.

Both birds work most assiduously at this excavation, one waiting outside to encourage the other, whilst it is engaged in digging, and when the latter is fatigued, taking its place. I have approached trees whilst these Woodpeckers were thus busily employed in forming their nest, and by resting my head against the bark, could easily distinguish every blow given by the bird. I observed that in two instances, when the Woodpeckers saw me thus at the foot of the tree in which they were digging their nest, they abandoned it for ever. For the first brood there are generally six eggs. They are deposited on a few chips at the bottom of the hole, and are of a pure white colour. The young are seen creeping out of the hole about a fortnight before they venture to fly to any other tree. The second brood makes its appearance about the 15th of August.

In Kentucky and Indiana, the Ivory-bills seldom raise more than one brood in the season. The young are at first of the colour of the female, only that they want the crest, which, however, grows rapidly, and towards autumn, particularly in birds of the first breed, is nearly equal to that of the mother. The males have then a slight line of red on the head, and do not attain their richness of plumage until spring, or their full size until the second year. Indeed, even then, a difference is easily observed between them and individuals which are much older.

The food of this species consists principally of beetles, larvæ, and large grubs. No sooner, however, are the grapes of our forests ripe than they are eaten by the Ivory-billed Woodpecker with great avidity. I have seen this bird hang by its claws to the vines, in the position so often assumed by a Titmouse, and, reaching downwards, help itself to a bunch of grapes with much apparent pleasure. Persimmons are also sought for by them, as soon as the fruit becomes quite mellow, as are hackberries.

The Ivory-bill is never seen attacking the corn, or the fruit of the orchards, although it is sometimes observed working upon and chipping off the bark from the belted trees of the newly-cleared plantations. It seldom comes near the ground, but prefers at all times the tops of the tallest trees. Should it, however, discover the half-standing broken shaft of a large dead and rotten tree, it attacks it in such a manner as nearly to demolish it in the course of a few days. I have seen the remains of some of these ancient

monarchs of our forests so excavated, and that so singularly, that the tottering fragments of the trunk appeared to be merely supported by the great pile of chips by which its base was surrounded. The strength of this Woodpecker is such, that I have seen it detach pieces of bark seven or eight inches in length at a single blow of its powerful bill, and by beginning at the top branch of a dead tree, tear off the bark, to an extent of twenty or thirty feet, in the course of a few hours, leaping downwards with its body in an upward position, tossing its head to the right and left, or leaning it against the bark to ascertain the precise spot where the grubs were concealed, and immediately after renewing its blows with fresh vigour, all the while sounding its loud notes, as if highly delighted.

This species generally moves in pairs, after the young have left their parents. The female is always the most clamorous and the least shy. Their mutual attachment is, I believe, continued through life. Excepting when digging a hole for the reception of their eggs these birds seldom, if ever, attack living trees, for any other purpose than that of procuring food, in doing which they destroy the insects that would otherwise prove injurious to the trees.

I have frequently observed the male and female retire to rest for the night, into the same hole in which they had long before reared their young. This generally happens a short time after sunset.

When wounded and brought to the ground, the Ivory-bill immediately makes for the nearest tree, and ascends it with great rapidity and perseverance, until it reaches the top branches, when it squats and hides, generally with great effect. Whilst ascending, it moves spirally round the tree, utters its loud *pait, pait, pait,* at almost every hop, but becomes silent the moment it reaches a place where it conceives itself secure. They sometimes cling to the bark with their claws so firmly, as to remain cramped to the spot for several hours after death. When taken by the hand, which is rather a hazardous undertaking, they strike with great violence, and inflict very severe wounds with their bill as well as claws, which are extremely sharp and strong. On such occasions, this bird utters a mournful and very piteous cry.

I have only to add to what I have said of the habits and distribution of this species, that I found it very abundant along the finely wooded margins of that singular stream, called "Buffalo Bayou," in the Texas, where we procured several specimens.

Ivory-billed Woodpecker, *Picus principalis*, Wils. Amer. Orn., vol. iv. p. 20.
Picus principalis, Bonap. Syn., p. 44.
Ivory-billed Woodpecker, *Picus principalis*, Nutt. Man., vol. i. p. 564.
Ivory-billed Woodpecker, *Picus principalis*, Aud. Orn. Biog., vol. i. p. 341; vol. v. p. 525.

Male, 21, 30. Female, 19½, wing 10.

Common in Texas, Louisiana, and along the Mississippi, to the Ohio. Rare on the latter, to Henderson. From Florida to North Carolina. Resident.

Adult Male.

Bill long, straight, strong, polyhedral, tapering, compressed and truncated at the tip; mandibles nearly equal, both nearly straight in their dorsal outline. Nostrils basal, oval, partly covered by recumbent bristly feathers. Head large. Neck long and slender. Body robust. Feet rather short, robust; tarsus strong, scutellate before, scaly on the sides; two toes before and two behind, the inner hind toe shortest; claws strong, arched, very acute.

Plumage compact, glossy. Feathers of the head elongated and erectile. Wings large, the third and fourth quills longest. Tail long, graduated, of twelve tapering stiff feathers worn to a point by being rubbed against the bark of trees.

Bill of an Ivory-white, whence the common name of the bird. Iris bright yellow. Feet greyish-blue. The general colour of the plumage is black, with violet reflections, more glossy above. The feathers of the middle and hind part of the head are of a vivid deep carmine. A broad band of white runs down the neck and back, on either side, commencing narrow under the ear, and terminating with the scapulars. The five outer primaries black, the rest white towards the end, the secondaries wholly white, so that when the wings are closed, the posterior part of the back seems white, although it is in reality black. Lateral tail-feathers with a spot of white near the tip of each web.

Length 21 inches, extent of wings 30; bill along the back 2⅜, along the gap 3; tarsus 2.

Adult Female.

The female resembles the male in colouring, but wants the vivid patch on the crest, which is wholly black.

Two of these Woodpeckers, preserved in spirits, have afforded an opportunity of making the following observations.

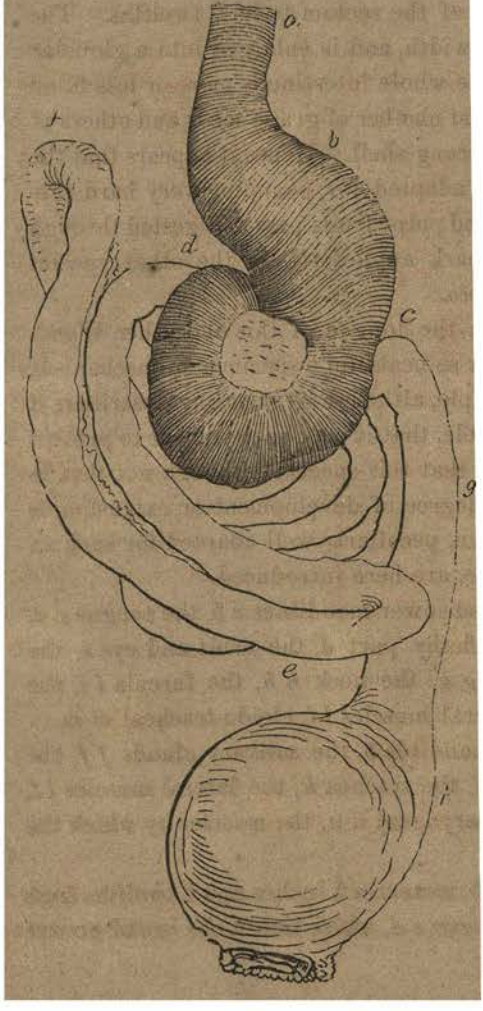
The length to end of tail is 19½ inches, to end of wings 16½, to end of claws 15; wing from flexure 10; tail 9¾.

The width of the mouth is 1 inch. The bill, fig. 1, *a b*, p. 222, is much longer than the head, straight, robust, its horny covering of extreme thickness and solidity. It is broader than high at the base, in the proportion of 1 inch to 8 twelfths. The upper mandible, *a*, has its dorsal outline very slightly arched and deflected, the ridge narrow, the lateral ridge at the base equidistant from the median ridge and the margin, running parallel with the former, and passing out at the margin at the distance of 10 twelfths from the

tip; the space between the ridges concave, the margins overlapping and obtuse; the tip wedge shaped and truncate. The lower mandible, *b*, has the angle of moderate length and width, the dorsal line ascending and very slightly convex, the ridge narrow, with a broad groove on each side, beyond which the sides become erect and convex, the edges very broad, for two-thirds of their length roundish, afterwards flattened, the tip wedge-shaped and abrupt. The gap line is almost straight.

The roof of the mouth is somewhat convex: there are upon it two longitudinal papillate ridges, meeting anteriorly to the palatal slit, whence to the tip is a median groove, at the anterior extremity of which is a small hole; the upper mandible is but slightly concave. The posterior aperture of the nares is oblongo-linear, margined with acute papillæ, the space between it and the ridges also papillate.

Fig. 1.



The nostrils are oblong, 3 twelfths in length, 1½ twelfths in height, entirely covered by the bristly reversed feathers. The aperture of the eye is 4½ twelfths in width. That of the ear horizontally oblong, 35 twelfths in length, and 2 twelfths in height.

The heart is of moderate size, broadly conical, 1 inch 2 twelfths long, 1 inch 1 twelfth in breadth at the base. The liver is very small, the right lobe much larger than the left, the former being 11 twelfths long and 1 inch broad, while the latter is 10½ twelfths long and 7 twelfths in breadth. There is no gall-bladder.

The œsophagus, *a b c*, is 6½ inches long, and of the nearly uniform width of 6 twelfths. On entering the thorax, at *a*, it curves considerably to the left side, and becomes very muscular; the proventriculus, *b c*, has a breadth of 7¼ twelfths. The stomach, *c d*, is of moderate size, of a broadly

elliptical form, directed a little towards the right, somewhat compressed, 1 inch 2 twelfths long, and of about the same breadth. The muscular fasciculi on the proventriculus are extremely large. On the stomach also they are of great size, and the greatest thickness of its muscular coat is 1½ twelfths. This organ is completely filled with very hard seeds of different kinds, and some pulpy matter, but without any insects or larvæ. Its inner coat is thin, dense, very tough, nearly smooth, and of a dusky brown colour. The proventricular glandules, which are very small, form a belt 1 inch in breadth. The intestine, *d e f g h*, is of moderate length and very wide. The duodenum curves at the distance of 3¼ inches. The pylorus is about two-twelfths in width, with an elevated margin, and allows the untriturated seeds and other refuse to pass into the intestine, which in some parts is turgid with them. The intestine measures 24 inches in length; its width in the duodenal portion is 3¾ twelfths, and so continues to the length of 12 inches, when it gradually enlarges, so as at the commencement of the rectum to be 6 twelfths. The rectum itself, *e g h*, continues of that width, and is enlarged into a globular cloaca, *h*, 1½ inches in diameter. The whole intestine is more or less filled with pulpy matter, together with a vast number of grape seeds and others of a much larger size, but all having a strong shell. Hence it appears that the stomach of this Woodpecker is not adapted for pounding very hard substances, and that the seeds of berries and pulpy fruits pass undigested through its intestinal canal. The same remark applies to all the other species examined. There are *no traces of cæca.*

The apparatus, by means of which the tongue of this and other Woodpeckers is protruded and retracted, is so beautiful a specimen of mechanism, and at the same time so perfectly simple, although by bungling describers it has been rendered almost unintelligible, that it may be expedient to present it here in detail, the more especially that this species, although not that in which it is exhibited in the highest degree of development or extension, is yet, as being one of the largest known, peculiarly well adapted for such an examination. Two figures, therefore, are here introduced.

In Fig. 1 are seen :—The upper and lower mandibles *a b*, the tongue *c d*, the terminal barbed portion *c*, the fleshy part *d*, the orbit and eye *e*, the salivary gland *f*, the hyoid bones *g g*, the neck *h h*, the furcula *i i*, the œsophagus *j j*, the trachea *k*, its lateral muscles *l l*, cleido-tracheal *m m*.

In Fig. 2 are seen :—The lower mandible *b*, the salivary glands *f f*, the hyoid bones *g g*, the œsophagus *j j j*, the trachea *k*, the lateral muscles *l l*, the cleido-tracheal *m m*, the glosso-laryngeal *n n*, the muscles by which the tongue is exserted *o o*.

The bill of this species, Fig. 1, *a b*, measures 3 inches and 2 twelfths from the angle of the mouth ; and the tongue *c d*, which lies in the broad groove

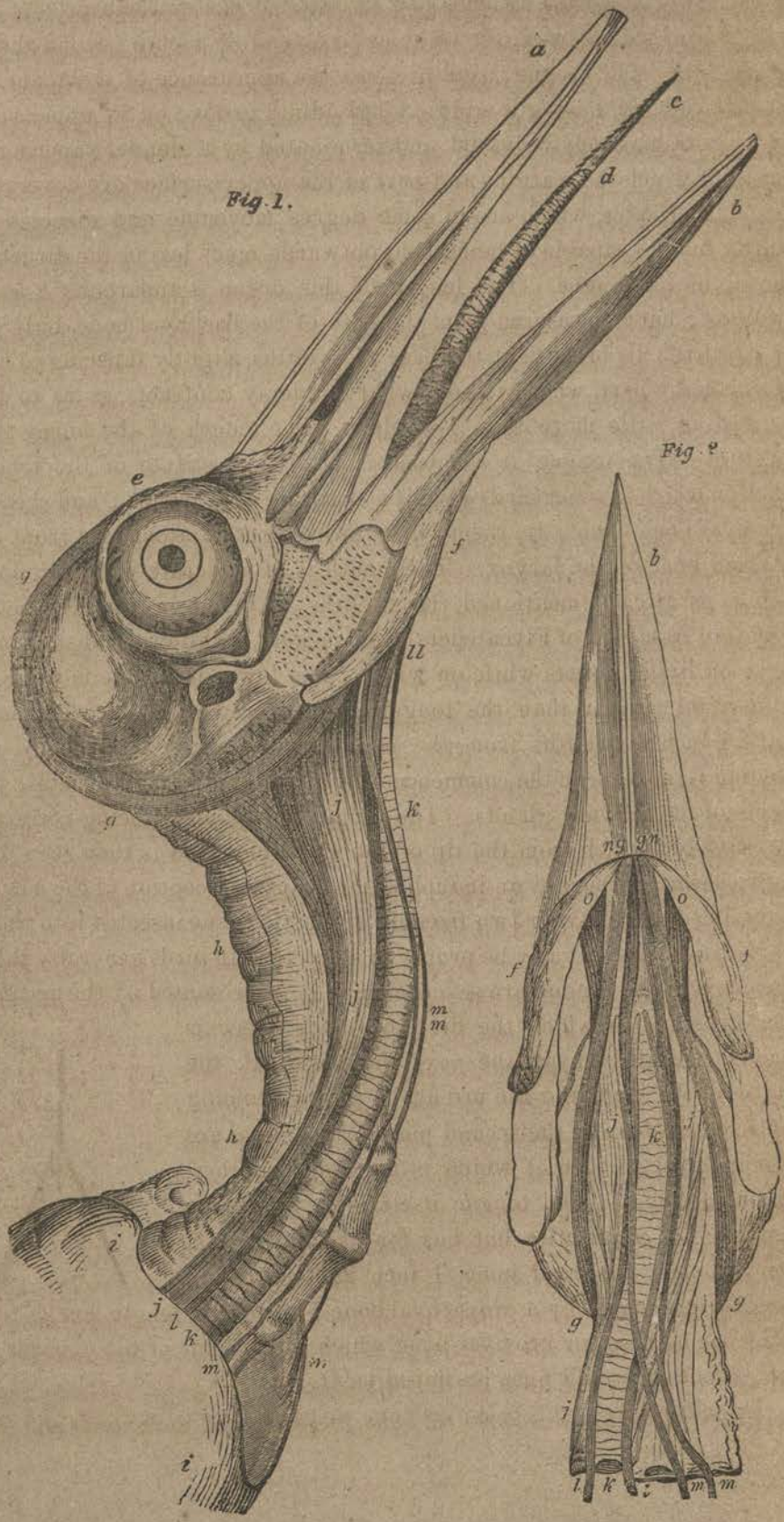


Fig. 1.
Fig. 2.
a
b
c
d
e
f
g
h
i
j
k
l
m
n
o
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of the lower mandible, reaches to 2 twelfths of the extreme tip, but at the will of the bird may be exserted so as to extend 3½ inches beyond the point of the bill. The tongue itself presents the appearance of a slender fleshy worm-like body, having a middle longitudinal groove on its upper surface, which is transversely wrinkled, and terminated by a slender tapering bony point, of which the margins and part of the upper surface are covered with acicular prickles, which are in some degree moveable and directed backwards, but not capable of being bent outwards, much less in the direction of the tip of the tongue. The length of this organ is apparently 2 inches 8 twelfths; but if measured from the base of the basi-hyal bone, only 1 inch 11 twelfths; its breadth at the base, 2½ twelfths, slightly tapering to the end of its fleshy part, where it somewhat suddenly contracts, so as to have a breadth of little more than 1 twelfth. The length of the horny tip is 9 twelfths. The tongue at the base is entirely destitute of the lobes and papillæ which in other birds give it a sagittate appearance; and there is no uro-hyal bone, which in them slips into a groove along the front of the thyroid bone of the larynx. The mouth is of moderate width, its breadth being, as already mentioned, 11 twelfths, it being in this respect very different from that of Flycatchers, Goatsuckers, Swallows, and such birds as seize on living insects while on wing. The lower mandible is deeply concave within, wider than the tongue, and covered with mucous membrane until 1 inch 5 twelfths from the point, beyond which it is horny, with a median Groove, near the commencement of which is a small aperture for the ducts of the salivary glands. The tongue is capable of being retracted 10 twelfths of an inch from the tip of the mandibles, and is then seen to slide into a sheath, formed by an induplication or intussusception of the membrane covering it, and having two frœnula of elastic tissue inserted into the angle of the jaw. Here it may be proper to state, that in birds generally the bony elements of the tongue are seven, as may be represented by the accompanying diagram, in which the first or upper piece is named the glosso-hyal, the next the basi-hyal, the third, in the same line, the uro-hyal; the two coming off from the base of the second piece or basi-hyal are the apo-hyal, to each of which is appended another, the cerato-hyal. The tongue itself is in no degree extensile or contractile, but has for its solid basis a very slender basi-hyal bone, 1 inch 2½ twelfths in length, terminated by a glosso-hyal bone ½ an inch in length, but, as already said, has no basal or uro-hyal bone, which, on account of the unusual extent of its motion, would form an impediment.

From the base of this basi-hyal bone, there proceed backwards and slightly

diverging, two slender apo-hyal bones, 1 inch 1 twelfth in length, each of which is continuous with an extremely elongated cerato-hyal bone, 4 inches and 1 twelfth in length, ⅔ twelfths in breadth at the commencement, gradually tapering to a blunt point, convex on its lower surface, concave or channelled on the upper, passing under and internally of the articulation of the jaw, and curving upwards along the occiput, until the two meet on the top of the head at the level of the posterior margin of the orbit, in the median line of the cranium, which is much depressed, whence they proceed in mutual contact, inclining slightly to the right side, and terminate a little before the anterior margin of the orbit, half an inch behind the right nostril, and a quarter of an inch from the base of the bill. These prolongations of the os hyoides being of an osseo-cartilaginous texture, are possessed of much elasticity, so as in some measure to resemble a curved spring.

From near the angle or point of union of the two crura of the lower mandible internally, there proceeds on each side a slender muscle, *o o*, which, running backwards, comes in contact with the prolongation of the hyoid bone at the joint between the apo-hyal and cerato-hyal portions, and is thence continued along the whole extent of the latter, *o g*, *o g*, running chiefly along its upper side, but partially enclosing it, and bound to it by a sheath of cellular tissue, which allows it considerable motion. The bone and muscle are together enclosed in an extremely delicate, transparent, tenacious sheath, moistened internally with a serous fluid, and terminating at the end of the bone, where it is attached by elastic tissue to the cellular substance and periosteum near the base of the bill. This delicate sheath, perfectly smooth and lubricated on its inner surface, is on the outer attached by delicate filaments to the dense cellular tissue which forms a kind of external sheath. It is fixed in its place, and the hyoid bone with its muscle, *g g*, slides backwards and forwards in it.

The entire length from the tip of the tongue, *c*, to the tip of each prolongation of the hyoid bone at *e*, is 7 inches 2 twelfths. The protrusion of the tongue is effected by the contraction of the slender muscle above described, *o*, which having a fixed basis in the lower jaw near its angle, and acting upon the tip of the hyoid bone, which is in this bird situated anteriorly to the eye, on the forehead, near the base of the upper mandible at *c*, causes the hyoid bone to glide within its sheath until its tip has moved backwards over the forehead, the crown, and occiput, and then advanced forwards until beneath the articulation of the lower jaw, thus traversing a space of 3½ inches; so that the tongue is protruded to 3 inches and 4 twelfths beyond the tip of the bill. When the muscle is relaxed, the parts regain their ordinary position by the aid of the elasticity of the prolongations of the

hyoid bones, and the action of another pair of muscles, to be presently described.

The tongue, *d*, is covered externally with a dense sheath of fibrous tissue. On its lower surface is seen on each side a very slender muscle, commencing at the extremity of the glosso-hyal bone, and running along the whole length of the basi-hyal bone, as well as of the apo-hyal, to be inserted into the cerato-hyal, at the distance of one inch from its base, on the outer edge. The action of this muscle, which has a strong tendon in its whole length, is to bend the tip of the tongue downwards, or to move the horn of the hyoid bone outwards. It may be called the glosso-hyal. It has another tendon running parallel to that mentioned, along its upper edge, of which the action must be to bend the tongue upwards upon the apo-hyal. Besides these muscles, there is another pair, forming a greater part of the fleshy portion of the tongue. They commence at the tip of the basi-hyal bone, or at *d*, proceed along the upper surface of the tongue, and, after running a course of 2¾ inches, pass along the anterior surface of the thyroid bone, wind along its edge, and are inserted near the middle surface of the trachea, about its tenth ring. The action of these muscles, alluded to at the end of the last paragraph, and marked *n n*, is to retract the tongue, when extended, as well as to pull forward the larynx.

Another pair of very slender muscles, *m m*, commence upon the edge of the thyroid bone externally of those last described, separate immediately from the trachea, pass directly down the neck in front, under the subcutaneous muscle and skin, to which they are firmly attached by cellular tissue, and are inserted into the furcular bone about the middle of its length. These muscles, the cleido-tracheales, are not peculiar to Woodpeckers, and have nothing particular to do with the movements of the tongue in those birds.

Parallel to the lower edge of the jaw, and extending from 4 twelfths anteriorly to its articulation to the junction of its crura, is, on each side, an elongated salivary gland, *f f*, attached to the jaw by cellular tissue. It is of a yellowish colour, internally parenchymatous, and sends off a duct, which enters the mouth by the aperture already mentioned, at the commencement of the groove in the horny part of the lower mandible. The fluid which it secretes is a glairy mucus, of a whitish colour, which being poured forth around the tip of the tongue covers it with a glutinous substance well adapted for causing the adhesion of any small body to it.

The Ivory-billed Woodpecker, then, having discovered an insect or larva in a chink of the bark, is enabled by suddenly protruding its tongue, covered with thick mucus, and having a strong slender sharp point furnished with small reversed prickles, to seize it and draw it into the mouth. These prickles are of special use in drawing from its retreat in the wood those

large larvæ, often two or three inches in length; but it does not appear probable that the bristly point is ever used to *transfix* an object, otherwise how should the object be again set free without tearing off the prickles, which are extremely delicate and not capable of being bent in every direction?

The trachea, *k k*, is 5 inches 4 twelfths in length, considerably flattened, nearly of the uniform breadth of 3 twelfths throughout. The aperture of the glottis is 4 twelfths long, with a posterior flap of several series of papillæ. The rings of the trachea are very strong, firmly ossified, 92 in number. At the upper part 3 are incomplete; the last entire ring is very broad and bipartite, and there are 2 additional dimidiate rings. The bronchi are short, of 12 half rings. The lateral or contractor muscles, *l l*, commence in front, at the base of the thyroid bone, diverge, presently become lateral, and thus proceed until 4½ twelfths from the extremity, when they terminate partly in the sterno-tracheal, but also send down a very thin slip, which is inserted on the first dimidiate ring.

The explanation of the mechanism by which the tongue is protruded as above given, differs materially from any of those to be found in English works at least, in some of which there is a very unnecessary prolixity as well as ambiguity. It does not appear that hitherto the real sheath in which the horns of the hyoid bone, with its muscle, move, has been observed, and the two very slender muscles which run from the sides of the thyroid bone to the furcula, are common to almost all birds, although they have been supposed to be peculiar to Woodpeckers.

THE PILEATED WOODPECKER.

PICUS PILEATUS, *Linn.*

PLATE CCLVII.—MALE. FEMALE. AND YOUNG MALES.

It would be difficult for me to say in what part of our extensive country I have not met with this hardy inhabitant of the forest. Even now, when several species of our birds are becoming rare, destroyed as they are, either to gratify the palate of the epicure, or to adorn the cabinet of the naturalist, the Pileated Woodpecker is every where to be found in the wild woods, although scarce and shy in the peopled districts.

Pileated Woodpecker.

1. Adult Male. 2. Adult. Female 3 and 4 Young Males

Raccoon Grape.

Drawn from Nature by J.J. Audubon F.R.S.F.L.S.

Lith.d Printed & Col.d by J. T. Bowen, Phila.d.

. Wherever it occurs it is a permanent resident, and, like its relative the Ivory-billed Woodpecker, it remains pretty constantly in the place which it has chosen after leaving its parents. It is at all times a shy bird, so that one can seldom approach it, unless under cover of a tree, or when he happens accidentally to surprise it while engaged in its daily avocations. When seen in a large field newly brought into tillage, and yet covered with girdled trees, it removes from one to another, cackling out its laughter-like notes, as if it found delight in leading you a wild-goose chase in pursuit of it. When followed it always alights on the tallest branches or trunks of trees, removes to the side farthest off, from which it every moment peeps, as it watches your progress in silence; and so well does it seem to know the distance at which a shot can reach it, that it seldom permits so near an approach. Often when you think the next step will take you near enough to fire with certainty, the wary bird flies off before you can reach it. Even in the wildest parts of Eastern Florida, where I have at times followed it, to assure myself that the birds I saw were of the same species as that found in our distant Atlantic States, its vigilance was not in the least abated. For miles have I chased it from one cabbage-tree to another, without ever getting within shooting distance, until at last I was forced to resort to stratagem, and seeming to abandon the chase, took a circuitous route, concealed myself in its course, and waited until it came up, when, it being now on the side of the trees next to me, I had no difficulty in bringing it down. I shall never forget, that, while in the Great Pine Forest of Pennsylvania, I spent several days in the woods endeavouring to procure one, for the same purpose of proving its identity with others elsewhere seen.

Their natural wildness never leaves them, even although they may have been reared from the nest. I will give you an instance of this, as related to me by my generous friend the Reverend JOHN BACHMAN of Charleston, who also speaks of the cruelty of the species. "A pair of Pileated Woodpeckers had a nest in an old elm tree, in a swamp, which they occupied that year; the next spring early, two Blue-birds took possession of it, and there had young. Before these were half grown, the Woodpeckers returned to the place, and, despite of the cries and reiterated attacks of the Blue-birds, the others took the young, not very gently, as you may imagine, and carried them away to some distance. Next the nest itself was disposed of, the hole cleaned and enlarged, and there they raised a brood. The nest, it is true, was originally their own. The tree was large, but so situated, that, from the branches of another I could reach the nest. The hole was about 18 inches deep, and I could touch the bottom with my hand. The eggs, which were laid on fragments of chips, expressly left by the birds, were six, large, white, and translucent. Before the Woodpeckers began to sit, I robbed them of

their eggs, to see if they would lay a second time. They waited a few days as if undecided, when on a sudden I heard the female at work again in the tree; she once more deepened the hole, made it broader at bottom, and recommenced laying. This time she laid five eggs. I suffered her to bring out her young, both sexes alternately incubating, each visiting the other at intervals, peeping into the hole to see that all was right and well there, and flying off afterwards in search of food.

When the young were sufficiently grown to be taken out with safety, which I ascertained by seeing them occasionally peeping out of the hole, I carried them home, to judge of their habits in confinement, and attempted to raise them. I found it exceedingly difficult to entice them to open their bill in order to feed them. They were sullen and cross, nay, three died in a few days, but the others, having been fed on grasshoppers forcibly introduced into their mouths, were raised. In a short time they began picking up the grasshoppers thrown into their cage, and were fully fed with corn-meal, which they preferred eating dry. Their whole employment consisted in attempting to escape from their prison, regularly demolishing one every two days, although made of pine boards of tolerable thickness. I at last had one constructed with oak boards at the back and sides, and rails of the same in front. This was too much for them, and their only comfort was in passing and holding their bills through the hard bars. In the morning after receiving water, which they drank freely, they invariably upset the cup or saucer, and although this was large and flattish, they regularly turned it quite over. After this they attacked the trough which contained their food, and soon broke it to pieces, and when perchance I happened to approach them with my hand, they made passes at it with their powerfull bills with great force. I kept them in this manner until winter. They were at all times uncleanly and unsociable birds. On opening the door of my study one morning, one of them dashed off by me, alighted on an apple-tree near the house, climbed some distance, and kept watching me from one side and then the other, as if to ask what my intentions were. I walked into my study :— the other was hammering at my books. They had broken one of the bars of the cage, and must have been at liberty for some hours, judging by the mischief they had done. Tired of my pets, I opened the door, and this last one hearing the voice of his brother, flew towards him and alighted on the same tree. They remained about half an hour, as if consulting each other, after which, taking to their wings together, they flew off in a southern direction, and with much more ease than could have been expected from birds so long kept in captivity. The ground was covered with snow, and I never more saw them. No birds of this species ever bred since in the hole

spoken of in this instance, and I consider it as much wilder than the Ivory-billed Woodpecker."

While in the Great Pine Forest of Pennsylvania, of which I have repeatedly spoken, I was surprised to see how differently this bird worked on the bark of different trees, when searching for its food. On the hemlock and spruce, for example, of which the bark is difficult to be detached, it used the bill sideways, hitting the bark in an oblique direction, and proceeding in close parallel lines, so that when, after awhile, a piece of the bark was loosened and broken off by a side stroke, the surface of the trunk appeared as if closely grooved by a carpenter using a gouge. In this manner the Pileated Woodpecker often, in that country, strips the entire trunks of the largest trees. On the contrary, when it attacked any other sort of timber, it pelted at the bark in a straightforward manner, detaching a large piece by a few strokes, and leaving trunks smooth, no injury having been inflicted upon it by the bill.

This bird, when surprised, is subject to very singular and astonishing fits of terror. While in Louisiana, I have several times crept up to one occupied in searching for food, on the rotten parts of a low stump only a few inches from the ground, when, having got so near the tree as almost to touch it, I have taken my cap and suddenly struck the stump, as if with the intention of securing the bird; on which the latter instantly seemed to lose all power or presence of mind, and fell to the ground as if dead. On such occasions, if not immediately secured, it soon recovers, and flies off with more than its usual speed. When surprised whilst feeding on a tree, they now and then attempt to save themselves by turning round the trunk or branches, and do not fly away unless two persons be present, well knowing, it would seem, that flying is not always a sure means of escape. If wounded without falling, it mounts at once to the highest fork of the tree, where it squats and remains in silence. It is then very difficult to kill it, and sometimes, when shot dead, it clings so firmly to the bark that it may remain hanging for hours. When winged and brought to the ground, it cries loudly on the approach of its enemy, and essays to escape by every means in its power, often inflicting a severe wound if incautiously seized.

The Pileated Woodpecker is fond of Indian corn, chestnuts, acorns, fruits of every kind, particularly wild grapes, and insects of all descriptions. The maize it attacks while yet in its milky state, laying it bare, like the Redheads or Squirrels. For this reason, it often draws upon itself the vengeance of the farmer, who, however, is always disposed, without provocation, to kill the "Woodcock," or "Logcock" as it is commonly named by our country people.

The flight of this well known bird is powerful, and, on occasion, greatly

protracted, resembling in all respects that of the Ivory-billed Woodpecker. Its notes are loud and clear, and the rolling sound produced by its hammerings, may be heard at the distance of a quarter of a mile. Its flesh is tough, of a bluish tint, and smells so strongly of the worms and insects on which it generally feeds, as to be extremely unpalatable. It almost always breeds in the interior of the forests, and frequently on trees placed in deep swamps over the water, appearing to give a preference to the southern side of the tree, on which I have generally found its hole, to which it retreats during winter or in rainy weather, and which is sometimes bored perpendicularly, although frequently not, as I have seen some excavated much in the form of that of the Ivory-billed Woodpecker. Its usual depth is from twelve to eighteen inches, its breadth from two and a half to three, and at the bottom sometimes five or six. It rears, I believe, only one brood in a season. The young follow their parents for a long time after coming abroad, receive food from them, and remain with them until the return of spring. The old birds, as well as the young, are fond of retiring at night to their holes, to which they return more especially in winter. My young friend, THOMAS LINCOLN, Esq. of the State of Maine, knew of one that seldom removed far from its retreat during the whole of the inclement season.

The observation of many years has convinced me, that Woodpeckers of all sorts have the bill longer when just fledged than at any future period of their life, and that through use it becomes not only shorter, but also much harder, stronger, and sharper. When the Woodpecker first leaves the nest, its bill may easily be bent; six months after, it resists the force of the fingers; and when the bird is twelve months old, the organ has acquired its permanent bony hardness. On measuring the bill of a young bird of this species not long able to fly, and that of an adult bird, I found the former seven-eighths of an inch longer than the latter. This difference I have represented in the plate. It is also curious to observe, that the young birds of this family, which have the bill tender, either search for larvæ in the most decayed or rotten stumps and trunks of trees, or hunt the deserted old fields, in search of blackberries and other fruits, as if sensible of their inaptitude for attacking the bark of sound trees or the wood itself.

This handsome species inhabits the Oregon territory about the Columbia river, whence I have procured specimens from Mr. TOWNSEND. According to Dr. RICHARDSON, it is a constant resident in the interior of the Fur Countries, up to the 62nd or 63d parallel, rarely appearing near Hudson's Bay, but frequenting the most gloomy recesses of the forests that skirt the Rocky Mountains. I found it more abundant in the Texas than any where else, and whilst on Galveston Island, saw one tapping against the roof of a house, the first and only instance of so much familiarity in a bird of this

species that has occurred to me. So much attached is this Woodpecker to the tree in which it has a hole, that during winter it is often seen with its head out, as if looking to the weather, the unfavourable state of which induces it to sink out of sight, and probably compose itself to rest. It may be found in the same neighbourhood during the whole year, and, like many others of this family, it usually spends the night in the same hole.

PILEATED WOODPECKER, *Picus pileatus*, Wils. Amer. Orn., vol. iv. p. 27.
PICUS PILEATUS, Bonap. Syn., p. 44.
PICUS (DRYOTOMUS) PILEATUS, *Pileated Woodpecker*, Swains. and Rich. F. Bor. Amer., vol. ii. p 304.
PILEATED WOODPECKER, or LOG-COCK, Nutt. Man., vol. i. p. 567.
PILEATED WOODPECKER, *Picus pileatus*, Aud. Orn. Biog., vol. ii. p. 74; vol. v. p. 533.

Male, 18, 28.

From Texas to the Columbia river, and along the Atlantic coast, as well as in the interior, to the Fur Countries. More abundant in the south. Resident every where.

Adult Male.

Bill long, straight, strong, polyhedral, tapering, compressed, and slightly truncated by being worn at the tip; mandibles of equal length, both nearly straight in their dorsal outline; their sides convex. Tongue worm-shaped, capable of reaching four inches beyond the bill, horny near the tip for about one-eighth of an inch, and barbed. Nostrils, basal, oval, partly covered by recumbent bristly feathers. Head large. Neck rather long, slender. Body robust. Feet rather short, robust; tarsus strong, scutellate before, scaly on the sides; two toes before and two behind, the inner hind toe shortest; claws strong, arched, very acute.

Plumage compact, glossy. Feathers of the head elongated, loose, and erectile. Wings large, the third and fourth quills longest. Tail long, cuneate, of twelve tapering stiff feathers, worn to a point by being rubbed against the bark of trees.

Bill and feet deep blue. Iris yellow. The general colour of the plumage is deep black, glossed with purplish-blue. The whole upper part of the head of a shining deep carmine; a broad band of black runs backwards from the eye, and is continued, narrow, to the forehead; between this band and the bright red of the upper part of the head is a narrow line of white; at the base of the bill commences, at first yellowish, a band of white, which crosses the cheek, expands on the side of the neck, where it is joined by the white of the throat, and terminates under the wing; there is also a broad band of red from the base of the lower mandible. Under wing-coverts white, as are the proximal portions of the quill.

Length 18 inches; extent of wings 28; bill along the back 1¾, along the edges 3.

Adult Female.

The female differs little in external appearance from the male. The fore part and sides of the head over the eye are dusky, and the bright red of the upper part of the head is confined to the vortex and occiput, while the red band, from the base of the lower mandible, is substituted by one of a brownish colour. In other respects it resembles the male.

Young Males.

The young males, fully fledged, differ little from old males in the tints and distribution of their colours; but they are represented in the plate for the purpose of shewing the original pointed form and greater length of the bill.

The Racoon Grape.

Vitis æstivalis, *Mich.*, Flor. Amer., vol. ii. p. 230. *Pursh*, Flor. Amer. Sept., vol. i. p. 169.—Pentandria Monogynia, *Linn.*—Vites, *Juss.*

The *racoon grape* is characterized by its broadly-cordate leaves, which have three or five lobes, its oblong clusters, and the small size of the bluish-black fruit. It is one of the finest of our vines, in regard to the luxuriance of its growth, its tortuous stem ascending the tallest trees to their summit, while its branches spread out so as to entwine the whole top. I have seen stems that measured eighteen inches in diameter, and the branches often extended from one tree to another, so as to render it difficult to pull down a plant after its stem has been cut. Its flowers perfume the woods. The grapes are small, hard, and very acrid, until severely bitten by frost. In autumn and winter, racoons, bears, opossums, and many species of birds, feed upon them.

LINEATED WOODPECKER.

PICUS LINEATUS, *Linn.*

(Not figured.)

A specimen of a Woodpecker sent from the Columbia river by Dr. MEREDITH GAIRDNER to Professor JAMESON of Edinburgh, who kindly lent it to me for the purpose of being described, I found to be the *Picus lineatus* of LINNÆUS, a species which appears to be very extensively distributed, being, according to various authors, plentiful in Cayenne, Guiana, Brazil, and even Paraguay. The specimen, which was shot near Fort Vancouver, is an adult male, but has been injured in the wings. Along with it were specimens of *Picus Harrisii* and *Picus ruber*, shot in the same neighbourhood.

PICUS LINEATUS, Linn. Syst. Nat., vol. i. p. 174.
LINEATED WOODPECKER, *Picus lineatus*, Aud. Orn. Biog., vol. v. p. 315.

Male, 15, wing $7\frac{2}{12}$.
Columbia river.
Adult Male.

Bill nearly as long as the head, straight, strong, angulate, depressed at the base, compressed toward the end, which is truncate, and laterally worn so as to be wedge-shaped. Upper mandible with the dorsal line slightly convex, the ridge very narrow and prominent, the sides concave at the base, the lateral angles nearer the ridge than the edges, which are sharp and direct; the point with two slight ridges on each side; lower mandible with the angle long and narrow, the dorsal line ascending and straight, the ridge narrow, the sides erect at the base, afterwards sloping outwards and convex, the tip narrow; gap-line straight. Nostrils elliptical, covered by a tuft of reversed bristly feathers.

Head rather large, ovato-oblong; neck rather long and slender. Feet short, stout; tarsus very short, scutellate before, scaly on the sides; two toes before, two behind, the fourth being directed backwards; the first very small, the third a little longer than the fourth, all scutellate above; claws

strong, much curved, much compressed, deep, broadly grooved on the sides, very acute.

Plumage blended; feathers on the upper aud hind part of the head linear, glossy, stiffish, with separated barbs, forming a broad occipital crest an inch in length. Wings long, much rounded; the outer six quills with the inner web cut out: the first very small, being only an inch and three-quarters long; the second two inches and five-twelfths longer; the third eleven-twelfths longer; the fourth two and a half twelfths shorter than the fifth, which is longest; the fourth a little shorter than the sixth; the third and seventh nearly equal; the second shorter than the eighth. Tail rather long, cuneate, acuminate, of twelve feathers, the lateral only an inch and three-quarters long, slender and unworn, the rest pointed; the middle feathers exceeding the second outer feathers by an inch and eight-twelfths.

Bill horn-coloured, bluish toward the end, dusky at the point. Feet greyish-blue, claws brownish. The upper part of the head, including the forehead and occiput, vivid scarlet; a narrow dusky line from the nostril to the eye; a patch, including the eyelids and ear-coverts, leaden-grey; a narrow band down the hind part of the neck gradually enlarging, the back, wings, and tail deep black; a band from the nostrils obliquely descending over the side of the head, passing backwards behind the ear, then much enlarged, and running down the side of the neck to the shoulder, a large oblique patch at the commencement of the wing, including the outer scapulars, the small feathers on the edge of the wing under the alula, the lower wing-coverts, and the inner webs of the quills for about half their length, pure white. There is an elongated oblong crimson patch at the base of the lower jaw; the chin or fore part of the throat is yellowish-white, longitudinally streaked with dusky, the rest of the fore neck and a part of the breast black; the lower parts and sides brownish white, transversely barred with black.

Length to end of tail 15 inches; bill along the ridge $1\frac{5}{12}$, along the edge of lower mandible $1\frac{9}{12}$; wing from flexure $7\frac{2}{12}$; tail $5\frac{1}{12}$; tarsus $\frac{1}{12}$; hind toe $\frac{4}{12}$, its claw $\frac{3}{12}$; second toe $\frac{9}{12}$, its claw $\frac{8}{12}$; third toe $1\frac{1}{12}$, its claw $\frac{9}{12}$; third toe $\frac{10}{12}$, its claw $\frac{6}{12}$.

Canadian Woodpecker.

Male.

Drawn from Nature by J.J.Audubon,F.R.S.F.L.S. Lith.d Printed & Col.d by J. T. Bowen, Philad.a

CANADIAN WOODPECKER.

PICUS CANADENSIS, *Gmel.*

PLATE CCLVIII.—MALE.

This species, which has been overlooked by all the recent writers on the birds of North America, although described and figured by BUFFON, I again introduce to your notice. If you compare the figure of it with that of the Hairy Woodpecker, *Picus villosus*, you will perceive that it is much larger, and somewhat differently marked, although extremely similar in form and colours.

The most southern localities in which this species has been observed in the United States, in so far as I have been able to trace it, whether personally or by means of my friend Dr. TRUDEAU, are the northern portions of the State of Pennsylvania, in winter, where, however, it seems to be rare. It is more plentiful at that season in the same parallel in the State of New York, beyond which, northward, it is abundant up to the 56th degree, but then yields in frequency to the Common Three-toed Woodpecker.

It was in the course of my journey through the State of Maine, on which I was accompanied by my wife and sons, that I became aware of its being distinct from the Hairy Woodpecker. There I found it very abundant in the woods, around the farms, by the roads, and on the fences. Its notes alone suffice to distinguish it from every other species, being louder and much shriller than those of *Picus villosus*. It also resorts to prostrate decaying logs lying on the ground, in quest of food, much more than that species does, and quite as much as the Pileated Woodpecker, *P. pileatus*. During its flight, the rustling sound of its wings is very remarkable; its passage from one tree to another appears more laborious, and in all its movements it is less active, restless, or petulant, than the Hairy Woodpecker. Those which I examined contained remains of large coleopterous insects, together with pieces of lichens.

Of its manner of breeding, eggs, or young, I unfortunately know nothing. The female differs from the male in little more than in wanting the red patch on each side of the occiput.

PICUS CANADENSIS, Gmel. Syst. Nat., vol. i. p. 437.

PICUS (DENDROCOPUS) VILLOSUS, *Hairy Woodpecker*, Swains. and Rich. F. Bor. Amer., vol. ii. p. 305.

CANADIAN WOODPECKER, *Picus canadensis*, Aud. Orn. Biog., vol. v. p. 189.

Male, 10½, 17¾.

From the northern parts of New York to the Fur Countries: Common. Migratory in winter to New York.

Adult Male.

Bill about the length of the head, straight, strong, angular, compressed toward the tip, which is truncate and cuneate. Upper mandible with the dorsal line straight, the ridge very narrow, the sides sloping and flat, the lateral angle or ridge nearer the edge, which is sharp, direct, and overlapping. Lower mandible with the angle short and rather wide, the dorsal line straight, the ridge narrow, the sides flat and grooved for some way beyond the angle, convex toward the edges, which are sharp and inflected, the tip narrow. Nostrils oblong, basal, concealed by the feathers, and placed near the margin.

Head large, ovate; neck rather short; body full. Feet very short; tarsus short, compressed, feathered anteriorly more than one-third down, scutellate in the rest of its extent, and with a series of large scales behind; toes four, first small, but stout; fourth considerably longer than the third; second and third united at the base; all scutellate above. Claws large, much curved, compressed, laterally grooved, very acute.

Plumage very soft, full, and blended. A large tuft of recurved stiffish feathers on each side of the base of the upper mandible, concealing the nostrils; the feathers in the angle of the lower mandible also stiffish, and directed forwards. Wings rather long; the first quill very small, being only an inch and a twelfth long, the second two inches longer, and seven-twelfths shorter than the third, which is two-twelfths shorter than the fourth, this being the longest, but exceeding the fifth only by one-twelfth; secondaries broad and rounded. Tail of moderate length, cuneate, of twelve feathers, of which the lateral, which are rounded and unworn, are only one inch and two-twelfths long, the next, also unworn, are eleven-twelfths of an inch shorter than the middle, which are pointed, sometimes without having the very strong shafts worn, but also sometimes having them broken off at the end; all the rest are more or less pointed.

Bill bluish-grey, toward the end black; iris brown; feet bluish-grey. The tufts of bristly feathers over the nostrils, and the angle of the lower jaw, are dull yellow; the upper part of the head and the hind neck are glossy black; over each eye is a band of white, continuous with a transverse band of scarlet on the occiput, usually interrupted in the middle; a black band from near the bill to the eye, continued behind it over the auriculars, and joining the black of the hind neck; beneath this black band is one of white, proceeding from the angle of the mouth and curving barkwards below the middle of the neck, so as to meet its fellow behind; this band is succeeded

by another of black, proceeding from the base of the lower mandible, and continuous with the black of the shoulders. All the upper parts may be described as black, tinged with brown behind; the feathers along the middle of the back tipped with white; the wing-coverts, the anterior excepted, and the quills spotted with the same, there being on the four longest primaries seven spots on the outer, and five on the inner web, on most of the secondaries five on each web, but on the outer quill only one patch on each web, and on the second three spots on the outer, and four on the inner web. The four middle tail-feathers are glossy black, the rest black towards the base, that colour gradually diminishing so that the outermost is almost entirely white. The lower parts are white, slightly tinged with reddish on the fore neck and breast.

Length to end of tail 10½ inches, to end of wings 8; to end of claws 9¼; extent of wings 17¾; bill along the ridge $1\frac{6}{12}$; along the edge of lower mandible 1¾; wing from flexure $5\frac{1}{12}$; tail $3\frac{6}{12}$; tarsus $\frac{10}{12}$; hind toe $\frac{3}{12}$, its claw $\frac{3}{12}$; second toe $\frac{5}{12}$, its claw $\frac{6}{12}$; third toe $\frac{7}{12}$, its claw $\frac{6}{12}$; fourth toe $\frac{8}{12}$, its claw $\frac{6}{12}$.

The female, which is somewhat smaller than the male, differs only in being more tinged with brown, especially on the quills, and in wanting the red patches on the occiput.

In form and colour, this species differs in no appreciable degree from *Picus villosus*, which it also resembles in the texture of its plumage, and in the relative proportion of the quills and tail-feathers. But it is much larger, its bill is proportionally stouter, and its fourth toe a little more elongated. The differences, however, are extremely slight.

The roof of the mouth is anteriorly nearly flat, with a prominent median line; the posterior aperture of the nares linear, 9½ twelfths long, and margined with papillæ. The tongue is 1½ inches long, somewhat cylindrical for 11 twelfths, in the rest of its extent slender, tapering, with a horny sheath, having eight reversed bristles on each margin. The horns of the hyoid bone pass along the median line of the head until they are over the middle of the eyes, when they turn to the right side, and are curved along a deep groove on the anterior edge of the orbit, passing under the eye to opposite its middle. The œsophagus is 3 inches 2 twelfths long, 3¼ twelfths in width, and of nearly uniform diameter. The stomach is rather small, elliptical, 9 twelfths long, 8 twelfths broad; its lateral muscles moderately developed. The contents are larvæ and coleopterous insects. The epithelium is dense but thin, and longitudinally rugous. The intestine is 9 inches long, 2½ twelfths in width at its anterior part. There are no cæca.

The trachea is 2½ inches long, slender, about 2½ twelfths in breadth, a little flattened, and of about 60 rings. The bronchi are of moderate length,

slender, of about 12 half rings. The contractor muscles are moderate; the sterno-tracheals come off close to the inferior larynx, which is destitute of muscles.

PHILLIPS' WOODPECKER.

PICUS PHILLIPSII, *Aud.*

PLATE CCLIX.—MALES.

The only specimen of this beautiful Woodpecker that I have seen, an adult male, was sent to me by my friend Mr. NUTTALL, who procured it in the State of Massachusetts. Nothing is known as to its habits. In naming it after my friend BENJAMIN PHILLIPS, Esq., F.R.S., I have the pleasure of testifying my esteem and gratitude towards one whose kindness and generosity has often been experienced by me and every member of my family. The beauty of this bird has induced me to give two figures of it, by which its form and markings may be better seen.

PHILLIPS' WOODPECKER, *Picus Phillipsii*, Aud. Orn. Biog., vol. v. p. 186.

Male, 10½; wing, 5

Massachusetts. Very rare.

Adult Male.

Bill about the length of the head, straight, strong, angular, compressed toward the tip, which is pointed. Upper mandible with the dorsal line straight, the ridge very narrow, the sides sloping and flat, the lateral angle half-way between the ridge and the edge at the base, and running out upon the latter about two-thirds of its length, the edges sharp and overlapping, the tip acuminate. Lower mandible with the angle short and rather wide, the dorsal line straight, the ridge narrow, the sides convex toward the edges, which are sharp and inflected, the tip acuminate. Nostrils oblong, basal, concealed by the feathers, and placed near the margin.

Head large, ovate; neck rather short; body full. Feet very short; tarsus short, compressed, feathered anteriorly more than one-third down, scutellate in the rest of its extent, and with a series of large scales behind; toes four;

Phillips' Woodpecker.

Males.

Drawn from Nature by J.J.Audubon F.R.S.F.L.S Lith.d Printed & Col.d by J. T. Bowen Philad.a

first small, but stout; third and fourth about the same length; second and third united at the base; all scutellate above. Claws large, much curved, compressed, laterally grooved, very acute.

Plumage very soft, full, and blended. A tuft of reversed stiffish feathers on each side of the base of the upper mandible, concealing the nostrils; the feathers in the angle of the lower mandible also stiffish, and directed forwards. Wings rather long; the first quill very small, the second five-twelfths of an inch shorter than the third, the fourth longer than the latter by one-twelfth, but scarcely exceeding the fifth; secondaries broad and rounded. Tail of moderate length, cuneate, of twelve feathers, of which the lateral are only an inch and a quarter long and rounded, the next an inch and two-twelfths shorter than the middle, the rest worn and slit at the tip.

Bill dusky, its margins pale at the base. Iris red. Feet bluish-grey, claws dusky. The tufts of feathers covering the nostrils are yellowish-white; the fore part of the head to a little beyond the top orange-yellow; the occiput and hind neck glossy black; over each eye is a band of white passing to behind the auriculars; a black band from above the angle of the mouth to the eye, and behind it, including the auriculars; below this a white band orom the angle of the mouth joining that over the eye; and lastly, a narrower black band from the lower mandible. The upper parts are black, tinged with brown behind; the feathers along the middle of the back tipped with white; some of the wing-coverts are tipped with white, and the quills spotted with the same, there being on the four largest primaries seven spots on the outer, and five on the inner web. The four middle tail-feathers are glossy black, the rest black towards the base, that colour gradually diminishing so that the outermost is almost entirely white. The lower parts are white.

Length to end of tail 18½ inches; bill along the ridge $1\frac{3}{12}$, along the edge of lower mandible $1\frac{5}{12}$; wing from flexure 5; tail $3\frac{8}{12}$; tarsus $\frac{9}{12}$; inner toe $\frac{3}{12}$, its claw $\frac{4}{12}$; second toe $\frac{6}{12}$, its claw $\frac{4}{12}$; third toe $\frac{8}{12}$, its claw $\frac{6}{12}$; fourth toe $\frac{9}{12}$, its claw $\frac{6}{12}$.

This species is about the same size as *P. canadensis*, which it also resembles in colour, but is distinguished by the yellow patch on the head, and its thicker and more pointed bill.

MARIA'S WOODPECKER.

PICUS MARTINÆ, *Aud.*

PLATE CCLX.—MALE AND FEMALE.

This well-marked species, which has not hitherto been described or figured, was procured in the neighbourhood of Toronto in Upper Canada, by a gentleman who presented me with two specimens of it, a male and a female, but who has requested me not to mention his name. I am informed by this close observer of nature that its habits are as nearly as possible the same as those of the Hairy Woodpecker, *Picus villosus*, and that its eggs, which rarely exceed six in number, are pure white and translucent. In honouring this species with the name of Miss MARIA MARTIN, I cannot refrain from intimating the respect, admiration, and sincere friendship which I feel towards her, and stating that, independently of her other accomplishments, and our mutual goodwill, I feel bound to make some ornithological acknowledgment for the aid she has on several occasions afforded me in embellishing my drawings of birds, by adding to them beautiful and correct representations of plants and flowers.

MARIA'S WOODPECKER, *Picus Martinæ*, Aud. Orn. Biog., vol. v. p. 181.

Male, $9\frac{2}{12}$; wing, $4\frac{10}{12}$.

A pair found at Toronto, Upper Canada.

Adult Male.

Bill about the length of the head, straight, strong, angular, compressed toward the tip, which, however, is not truncate, but very slightly cuneate or worn on the sides. With this exception it is very similar to that of *Picus villosus* and *P. canadensis*. Upper mandible with the dorsal line almost straight, being very slightly convex, the ridge very narrow, the sides sloping and flat, or slightly concave, the lateral angle or ridge about half-way at its commencement between the ridge and the margin, but in its course gradually approximating the latter, and ending upon it about a fourth from the tip, edges sharp, direct, overlapping, tip rather acute. Lower mandible with the angle short and rather wide, the crural line a little concave, the dorsal ascending and slightly convex, the ridge narrow, the sides convex, the edges sharp and inclinate, the tip narrow. Nostrils oblong, basal, concealed by the feathers, and placed near the margin.

Maria's Woodpecker.

1. Male. 2. Female.

Drawn from Nature by J.J.Audubon,F.R.S.F.L.S. Lith.d Printed & Col.d by J.T.Bowen, Philad.a

Head large, ovate; neck rather short; body full. Feet very short; tarsus short, compressed, feathered anteriorly about half-way down, with five large scutella in the rest of its extent, scaly and sharp-edged behind; toes four; first small and stout; fourth longest and directed backwards; second and third toe united at the base; all scutellate above. Claws large, much curved, compressed, laterally grooved, very acute.

Plumage very soft, full, and blended. A large tuft of reversed stiffish feathers on each side of the base of the upper mandible, concealing the nostrils; the feathers in the angle of the lower mandible also stiffish, elongated, and directed forwards. Wings rather long; the first quill very small, being only an inch and five-twelfths long, the second half an inch shorter than the third, which is half a twelfth shorter than the fourth, the latter being the longest, and exceeding the fifth by two-twelfths; secondaries broadly rounded. Tail of moderate length, cuneate, of twelve feathers, of which the lateral, which are rounded and unworn, are only an inch and a twelfth long, the next, also unworn, are one inch shorter than the middle, which are pointed but slit, having the shaft broken off at a little distance from the tip, all the rest more or less pointed, and either entire or slit.

Bill dusky. Iris brown. Feet bluish-grey. The upper parts are black, spotted with white, the lower greyish-white. The tufts of bristly feathers over the nostrils, and in the angle of the lower mandible, are dull yellow; the upper part of the head is scarlet, the forehead and occiput are black; over each eye is a band of white; a black band from the bill to the eye, continued behind it over the auriculars, and joining the black of the hind neck; beneath this black band is one of white, proceeding from the angle of the mouth and curving backwards below the middle of the neck, so as almost to meet its fellow behind; this band is succeeded by another of black, proceeding from the base of the lower mandible, and continuous with the black of the shoulders. All the upper parts may be described as black, tinged with brown behind; the feathers along the middle of the back tipped with white, excepting on the rump; the wing-coverts and quills spotted with the same, there being on the four longest primaries seven spots on the outer, and four on the inner web, on most of the secondaries five on each web, but on the outer quill only one patch on each web, and on the second four spots on the outer and three on the inner web. The four middle tail-feathers are glossy black, the next black on the inner web, and the greater part of the outer toward the base, the rest black only at the base, the two outermost being almost entirely white. The lower parts are white, tinged with grey, and a little red; the sides faintly mottled with dusky grey; lower wing-coverts white, with a dusky patch toward the edge of the wing.

Length to end of tail $9\frac{2}{12}$ inches; bill along the ridge 1, along the edge

of lower mandible $1\frac{1}{4}$; wing from flexure $4\frac{10\frac{1}{2}}{12}$; tail $3\frac{3}{12}$; tarsus $\frac{10}{12}$; first toe $\frac{3}{12}$, its claw $\frac{2\frac{1}{2}}{12}$; second toe $\frac{6}{12}$, its claw $\frac{5\frac{1}{2}}{12}$; third toe $\frac{7\frac{1}{2}}{12}$, its claw $\frac{6\frac{1}{2}}{12}$; fourth toe $\frac{7\frac{1}{2}}{12}$, its claw $\frac{6}{12}$.

Adult Female.

The female, which is somewhat smaller, differs in external appearance only in having the upper parts duller and tinged with brown, the lower more tinged with grey, and the bright patch on the head of a yellowish-red tint and of much less extent.

This species is very nearly allied to *Picus villosus*, and is very similar in its colours, but differs in having the mandibles pointed, in being larger, in having the top of the head red or yellowish-red, and in having its fourth toe longer than the third.

HARRIS' WOODPECKER.

PICUS HARRISII, *Aud.*

PLATE CCLXI.—MALE AND FEMALE.

It is to Mr. TOWNSEND that we are indebted for the discovery of this singularly marked species, of which he has sent me a pair of specimens in excellent preservation, both shot on the Columbia river, the male on the 18th of January, 1836, the female on the 7th of September, 1834. Having been left at liberty to give names to whatever new species might occur among the birds transmitted to me by that zealous naturalist, I have honoured the present Woodpecker with the name of my friend EDWARD HARRIS, Esq., a gentleman to whom I am most deeply indebted for many acts of kindness and generosity, and in particular for his efficient aid at a time when, like my predecessor WILSON, I was reduced to the lowest degree of indigence, and removed from any individuals to whom I could make known my wants. But, independently of his claim to scientific recognition as the friend and supporter of one who has devoted his life to the study of birds, he merits this tribute as an ardent and successful cultivator of ornithology, and an admirer of the works of Him whose good providence gave me so noble-hearted a friend.

HARRIS' WOODPECKER, *Picus Harrisii*, Aud. Orn. Biog., vol. v. p. 191.

Harris's Woodpecker.

1. Male. 2. Female.

Drawn from Nature by J.J. Audubon F.R.S.F.L.S. Lith.d Printed & Col.d by J. T. Bowen, Phila.a

Male, 9; wing, $5\frac{3}{12}$.

Columbia river. Rare.

Adult Male.

Bill about the length of the head, straight, strong, angular, compressed toward the end, which is truncate and cuneate. Upper mandible with the dorsal line straight, the ridge very narrow, the sides sloping and concave to the lateral angle, which is nearer the edge, the intervening space nearly erect, the edges sharp, direct, and overlapping. Lower mandible with the angle short and of moderate width, the dorsal line straight, the ridge narrow, the sides convex at the base, sloping outwards and nearly flat, with a faint ridge, above which they are convex, the edges sharp, the tip truncate. Nostrils oblong, basal, concealed by the feathers, and placed near the margin.

Head large, ovate; neck rather short; body full. Feet very short; tarsus short, compressed, feathered anteriorly more than one-third down, scutellate in the rest of its extent, as well as internally behind; toes four; first small, fourth longest and directed backwards, second and third united at the base, the latter not much longer; all scutellate above. Claws large, much curved, compressed, laterally grooved, very acute.

Plumage very soft, full, and blended. A tuft of recurved stiffish feathers on each side of the base of the upper mandible, concealing the nostrils. Wings rather long; the first quill very small, being only an inch and two-twelfths in length, and two inches and a twelfth shorter than the second, which is eight-twelfths shorter than the third, the fourth two-twelfths longer than the latter, but scarcely exceeding the fifth; secondaries broadly rounded, the outer slightly emarginate. Tail of moderate length, cuneate, of twelve feathers, of which the latter, which is rounded and unworn, is only ten-twelfths long, the next, also rounded, an inch and a twelfth shorter than the middle, of which the shaft terminates so as to leave the tip slit.

Bill bluish-grey, as are the feet; the claws brown. The tufts at the base of the upper mandible dull yellow, with the tips black; the upper part of the head glossy black; over each eye is a band of white continuous with a transverse band of scarlet on the occiput; a black band in the loral space, continued behind the eye over the auriculars, and joining the black of the hind neck; beneath this black band is one of white, proceeding from the angle of the mouth and curving backward below the middle of the neck, but without meeting its fellow; this band is succeeded by another of black, proceeding from the base of the lower mandible, and continuous with the black of the hind neck and shoulders. All the upper parts are black, the quills tinged with brown; but the feathers along the middle of the back are largely tipped with white; the quills, excepting the inner three, are marked

with small roundish spots, of which there are five on the outer, and four on the inner web of the four longest quills, while on the outer there is only an elongated spot on the inner web, and on the next one spot on the outer and three on the inner. The four middle tail-feathers are black, the next also black, with a small part of the inner web, and a large portion of the outer, toward the end, white; the rest white, with the base black; the outermost small feather almost entirely white. The lower parts are brownish-white.

Length to end of tail 9 inches; bill along the ridge $1\frac{1}{4}$, along the edge of lower mandible $1\frac{5}{12}$; wing from flexure $5\frac{2}{12}$; tail $3\frac{1}{2}$, tarsus $\frac{10}{12}$; hind toe $\frac{3}{12}$, its claw $\frac{3}{12}$; second toe $\frac{6}{12}$, its claw $\frac{6}{12}$; third toe $\frac{7}{12}$, its claw $\frac{7}{12}$; fourth toe $\frac{8}{12}$, its claw $\frac{7}{12}$.

Adult Female.

The female resembles the male, but wants the red occipital band.

HAIRY WOODPECKER.

PICUS VILLOSUS, *Linn.*

PLATE CCLXII.—MALE AND FEMALE

This species of Woodpecker has been confounded with *Picus canadensis*, to which it bears a great resemblance in its markings, but from which it is distinguished by its smaller size, and other differences. WILSON, it appears, did not believe in the existence of the Canada Woodpecker, *Picus canadensis;* yet his figure of the Hairy Woodpecker seems to me to be a representation of that species, while his description belongs in part to both. These errors have been adopted by all his followers to the present day, although the specific distinctions between *Picus villosus* and *P. canadensis* have been clearly recognised by my young friend Dr. TRUDEAU, who wrote to me from Paris that both species were in the national museum there, and were looked upon as the same bird. Mr. SWAINSON, who observed a difference between the birds of the present species received from New York and those of higher northern latitudes, has given an exact description and figure of the bill of *P. canadensis*, thinking that he was describing *P. villosus* of LINNÆUS. To this he was probably led by the erroneous account given of the extent of the distribution of this species northward.

Hairy Woodpecker.

1. Male 2. Female.

Drawn from Nature by J.J.Audubon,F.R.S.F.L.S. Lith.d Printed & Col.d by J. T. Bowen, Phila.a

The Hairy Woodpecker, *P. villosus*, is a constant resident in our maritime and inland districts, from the Texas, where I have found it numerous, to the State of New Hampshire, as well as in all sufficiently wooded tracts intervening between the junction of the Missouri and Mississippi, and the northern borders of our great lakes. But not a single individual of this species could I or my sons procure in the State of Maine, where, however, the larger species, *P. canadensis*, was quite abundant, and from whence it extends its migrations "as far north," according to Dr. RICHARDSON, "as the sixty-third parallel." "It remains," he continues, "all the year in the Fur Countries, and is the most common species up to the fifty-sixth degree of latitude, north of which it yields in frequency to the three-toed species."

Lively, noisy, and careless of man, the Hairy Woodpecker is found *at all seasons* in the orchards, among the trees of our cities, along the borders of plantations, on the fences, or on the trees left in the fields, as well as in the densest parts of the forests. Nay, reader, I have found this species, when in company with my friend HARRIS and my youngest son, in the very midst of vast salt-marshes, about the mouths of the Mississippi, where here and there a straggling willow or cotton-tree bush occurred, as gay, busy, noisy, and contented as if it had been in the midst of the woods. In such localities it alights against the stalks of the largest and tallest reeds, and perforates them as it is wont to bore into trees.

In almost all parts of the Southern States, it becomes in winter one of the most familiar species, and, like the Downy Woodpecker, comes to the yard to glean the grains of corn left by the cattle. There it may be seen hopping on the ground, among Turtle Doves, Cardinal Grosbeaks, Red-bellied Woodpeckers, and several species of Blackbirds. At this season, its visits to the corn-cribs are extremely frequent; and curious indeed do the shrill notes of this lively and industrious bird sound in the ear of the person who chances to surprise it within the crib, from which it makes off, passing swiftly, perhaps within a foot or so of his hand. But no sooner has its escape been effected than it will alight close by, on the top of a fence-stake, and chuck aloud as if in merriment. I have often observed it clinging to the stalks of the sugar-cane, boring them, and apparently greatly enjoying the sweet juices of that plant; and when I have seen it, in severe winter weather, attempting to bore the dried stalks of maize, I have thought it expected to find in them something equally pleasing to its taste. Like all our other species, it clings, when shot, to the trunk or branch of the tree, until quite dead, and even remains sticking for several minutes more.

The flight of this species is usually short, though rapid, in this respect agreeing with that of some others allied to it, which are constant residents in the United States, and differing from that of the migratory species. It is

seldom that more than the members of a family are seen together, and even this only until the young are able to provide for themselves. The migratory species, on the contrary, are frequently observed to congregate upon trees laden with fruit. This never happens with the Hairy, Downy, Yellow-bellied, Red-bellied, Canada, or Three-toed Woodpeckers; among some of which, however, a certain change of locality takes place from south to north and backwards, within the limits of the United States, in spring and autumn.

The Hairy Woodpecker feeds on the larvæ of most insects, as well as on the insects themselves. It sometimes launches into the air after a passing one, as indeed is the case with all the Woodpeckers with which I am at present acquainted, although the larger species are less addicted to this mode of pursuing their prey than the smaller. In autumn it frequently feeds on berries near the ground, or on grasses and other fruits among the tops of our tall trees. Its notes are sharp, loud, and at times rolling, like those of others of our smaller species, but frequently uttered singly whilst it is moving on wing or along a tree.

The hole which it forms for receiving its eggs seldom exceeds two feet in depth, after diverging from its first horizontal direction, sometimes running perpendicularly, but often obliquely. In the Southern States two broods are frequently reared in the season; the first being seen abroad in May, the other in the end of July or the beginning of August. In the Middle Districts it rarely produces more than one brood. I have regularly observed that those pairs which had two broods in Louisiana, raised both in the same nest, and that not unfrequently within a few yards of a house. The eggs of the first hatch are usually six, of the second four. In the Middle Districts the number varies from four to six, and in two instances I found seven. They measure 1 inch in length by 5½ eighths in breadth, are elliptical or almost equally rounded at both ends, smooth, pure white, and translucent. The young remain about the nest until well able to fly, as is the case with those of other species.

Various writers state that the Hairy Woodpecker has been found in England; but this is very doubtful, and at present it does not seem that there are any well authenticated instances.

I have figured a male and a female; the latter, I believe, not having previously been represented.

HAIRY WOODPECKER, *Picus villosus*, Wils. Amer. Orn., vol. i. p. 150.
PICUS VILLOSUS, Bonap. Syn., p. 46.
HAIRY WOODPECKER, Nutt. Man., vol. i. p. 575.
HAIRY WOODPECKER, *Picus villosus*, Aud. Orn. Biog., vol. v. p. 164.

Male, 8¾, 14½. Female, 8½, 15.

Breeds from Texas to New Hampshire, Kentucky, and Valley of the Mississippi. Common. Resident.

Adult Male.

Bill about the length of the head, straight, strong, angular, compressed toward the tip, which is truncate and cuneate. Upper mandible with the dorsal line straight, the ridge very narrow, the sides sloping and flat, the lateral angle or ridge nearer the edge, which is sharp, direct, and overlapping. Lower mandible with the angle short, and rather wide, the dorsal line straight, the ridge narrow, the sides flat at the base, convex toward the end, the edges inflected, the tip narrow. Nostrils oblong, basal, concealed by the feathers, and placed near the margin.

Head large, ovate; neck rather short; body full. Feet very short; tarsus short, compressed, feathered anteriorly more than one-third down, scutellate in the rest of its extent, as well as behind, on the inner side; toes four; first small, but stout; fourth longest and directed backwards, second and third united at the base; all scutellate above. Claws large, much curved, compressed, laterally grooved, very acute.

Plumage very soft, full, and blended. A large tuft of reversed stiffish feathers on each side of the base of the upper mandible, concealing the nostrils; the feathers in the angle of the lower mandible also stiffish, elongated, and directed forward. Wings rather long; the first quill very small, being only eleven-twelfths long, the second one inch and eleven-twelfths longer, and five and a half twelfths shorter than the third, which is one-twelfth shorter than the fourth, this being the longest, but scarcely exceeding the fifth; secondaries broad and rounded. Tail of moderate length, cuneate, of twelve feathers, of which the lateral, which are rounded and unworn, are only one inch long, the next, also unworn, are nine-twelfths of an inch shorter than the middle, which are pointed, having the shafts very strong and bristle-pointed; all the rest more or less pointed.

Bill bluish-grey, toward the end black. Iris brown. Feet bluish-grey. The upper parts are black, spotted with white, the lower brownish-white. The tufts of bristly feathers over the nostrils, and in the angle of the lower jaw, are dull yellow; the upper part of the head and the hind neck are glossy black; over each eye is a band of white continuous with a transverse band of scarlet on the occiput, usually divided into two patches by the continuation of the black of the head; a black band from the bill to the eye, continued behind it over the auriculars, and joining the black of the hind neck; beneath this black band is one of white, proceeding from the angle of the mouth and curving backwards below the middle of the neck, so as to meet its fellow behind; this band is succeeded by another of black, proceeding from the base of the lower mandible, and continuous with the black of

the shoulders. All the upper parts may be described as black, tinged with brown behind; the feathers along the middle of the back tipped with white, forming a longitudinal band of that colour; the wing-coverts, the anterior excepted, and quills spotted with the same, there being on the four longest primaries seven spots on the outer and five on the inner web, on most of the secondaries five on each web; but on the outer quill only one patch on each web, and on the second two spots on the outer, and three on the inner. The four middle tail-feathers are glossy black, the rest black only towards the base, the outermost being almost entirely white. The lower parts are white, tinged with dull grey on the fore neck and breast, the sides with blackish-grey.

Length to end of tail 8¾ inches; to end of wings 7⅞, to end of claws 7½; extent of wings 14¼; bill along the ridge 1 1/12; along the lower mandible 1¼; wing from flexure 4 7/12; tail 2 11/12; tarsus 1 0/12; hind toe 3/12, its claw 4/12; second toe 6/12, its claw 6/12; third toe 7/12, its claw 6½/12, fourth toe 7/12, its claw 7/12.

Adult Female.

The female resembles the male externally, being however more tinged with brown, especially on the quills, and wanting the red patches on the occiput.

Length to end of tail 8½ inches, to end of wings 7½, to end of claws 7½; extent of wings 15.

In an adult male the roof of the mouth has a prominent middle ridge, which divides posteriorly into two; the palate is convex; the posterior aperture of the nares linear-oblong, margined with papillæ. The tongue is eleven-twelfths long, toward the end horny, pointed, and furnished with two lateral series of acute reversed papillæ. The horns of the hyoid bone curve round the occiput, converge on the top of the head, then leave the median line, pass to the right side in a groove round the anterior edge of the orbit, and are deflected backwards below the eye *so far as near the level of its posterior angle*. The aperture of the mouth measures 5½ twelfths across. The œsophagus is 3 inches long, 3½ twelfths in diameter, very slightly dilated at the lower part of the neck. The proventriculus is scarcely enlarged, its glandules form a belt 4 twelfths in breadth. The stomach is oblong, 11 twelfths in length, 7 twelfths broad; its lateral muscles very thin; the epithelium thin, tough, longitudinally rugous, reddish-brown. The contents of the stomach are skins of large white larvæ with black heads. The intestine is 9½ inches long, the duodenum 2½ twelfths in diameter. There are no cœca.

The trachea is 2 inches 5 twelfths in length, its diameter 1½ twelfths, gradually diminishing to 1 twelfth. The contractor muscles are both anterior for the length of 1½ inches, beyond which they become lateral, and

Downy Woodpecker.

1. Male. 2. Female.

Drawn from Nature by J.J.Audubon FRSFLS. Lith^d Printed & Col^d by J. T. Bowen, Philad^a

terminate in the sterno-tracheal at the distance of 2 twelfths from the bifurcation. There are no inferior laryngeal muscles. The rings of the trachea, which are firm, and but slightly compressed, are about 50 in number; the bronchial half rings about 15.

According to Mr. TOWNSEND this species is found from the Rocky Mountains to the shores of the Columbia river.

THE DOWNY WOODPECKER.

PICUS PUBESCENS, *Linn.*

PLATE CCLXIII.—MALE AND FEMALE.

The Downy Woodpecker, which is best known in all parts of the United States by the name of Sapsucker, is perhaps not surpassed by any of its tribe in hardiness, industry, or vivacity. If you watch its motions while in the woods, the orchard, or the garden, you will find it ever at work. It perforates the bark of trees with uncommon regularity and care; and, in my opinion, greatly assists their growth and health, and renders them also more productive. Few of the farmers, however, agree with me in this respect; but those who have had experience in the growing of fruit-trees, and have attended to the effects produced by the boring of this Woodpecker, will testify to the accuracy of my statement.

This species is met with, during summer, in the depth of the forest, as well as in the orchard or the garden. In winter it frequently visits the wood-pile of the farmer, close to his house, or resorts to his corn-crib, where, however, it does little damage. I have found it pretty generally distributed from the lower parts of Louisiana to Labrador, and as far to the westward as I have travelled. It seems, in fact, to accommodate itself to circumstances, and to live contented anywhere.

About the middle of April it begins to form its nest, shewing little care as to the kind of tree it selects for the purpose, although it generally chooses a sound one, sometimes, however, taking one that is partially decayed. The pair work together for several days before the hole is completed, sometimes perhaps a whole week, as they dig it to the depth of a foot or sixteen inches. The direction is sometimes perpendicularly downwards from the commence-

ment, sometimes transverse to the tree for four or five inches, and then longitudinal. The hole is rendered smooth and conveniently large throughout, the entrance being perfectly round, and just large enough to admit one bird at a time. The eggs, commonly six in number, pure white, and translucent, are deposited on the bare wood. In the Southern and Middle States, two broods are raised in the season; farther north seldom more than one. The young follow their parents through the woods, in company with Nuthatches and Creepers, and seem at all times lively and happy. Their shrill rolling notes are heard at a considerable distance, as well as those which they use when calling to each other. Their food, during summer, consists of insects and their larvæ; but, at the approach of autumn, they feed on fruits of various kinds, especially small grapes, and the berries of the poke-weed. The extensile portion of the tongue of this species, as well as of *Picus varius*, *P. villosus*, and *P. querulus*, is cylindrical or vermiform, while the extremity, or tongue itself, is linear, flat above, convex beneath, with projecting edges which are serrated backwards, the tip pointed.

The flight of the Downy Woodpecker, like that of the other species, is performed by glidings and undulations, between each of which it utters a single click note; and, although usually short, is capable, on occasion, of being protracted. The bird is by no means shy or suspicious, and scarcely pays any attention to man, even when standing close to the tree on which it is at work. Towards winter many individuals migrate southward, and spend their time in the immediate neighbourhood of the planter's dwelling.

I have observed that during their stay in the Floridas, Georgia, and the Carolinas, their breast and belly are so soiled by the carbonaceous matter adhering to the trees, in consequence of the burning of the grass at that season, that one might be apt to take a specimen in that state, as belonging to a different species.

Downy Woodpecker, *Picus pubescens*, Wils. Amer. Orn., vol. i. p. 153.

Picus pubescens, Bonap. Syn., p. 46.

Picus (Dendrocopus) pubescens, *Downy Woodpecker*, Swains. and Rich. F. Bor. Amer., vol. ii. p. 307.

Downy Woodpecker, Nutt. Man., vol. i. p. 576.

Downy Woodpecker, *Picus pubescens*, Aud. Orn. Biog., vol. ii. p. 81; vol. v. p. 539.

Male, 6¾, 12.

Breeds from Texas to Labrador, and northward to lat. 58°. Common throughout the interior to the eastern bases of the Rocky Mountains. In every district a constant resident.

Adult Male.

Bill longish, straight, strong, tapering, compressed, slightly truncated and

cuneate at the tip ; mandibles of equal length, both nearly straight in their dorsal outline, their sides convex ; nostrils basal, oval, covered by recumbent bristly feathers. Head of moderate size, neck of ordinary length, body robust. Feet rather short, strong : tarsus strong, scutellate before ; two toes before and two behind, the inner hind toe shortest ; claws strong, arched, very acute.

Plumage soft, with rather disunited barbs, slightly glossed ; wings large, the third and fourth quills longest ; tail longish, cuneate, of ten tapering stiff feathers, worn to a point.

Bill bluish-black ; iris dark red ; feet bluish-green ; claws light blue, black at the end. The top of the head is black, as are a broad band behind the eye, another below the cheek, as well as the shoulders, wings, and tail ; there is a bright red narrow band on the occiput. A band over the eye, and meeting on the hind neck ; another from the base of the upper mandible, passing under the eye, and down the neck ; six bars on the wings, and the greater part of the middle of the back, together with the three lateral tail-feathers on each side, white, the latter marked with black spots. The lower parts in general are dull white.

Length 6¾ inches ; extent of wings 12 ; bill along the ridge ½ ; tarsus ¾.
Adult Female.

In the female, the red band on the head is wanting, the place occupied by it in the male being white. The lower parts are brownish-white.

In a male preserved in spirits, the width of the mouth is 4½ twelfths, the tongue is 8½ twelfths long, its horny part 3½ twelfths, slender, tapering, flat above, furnished on the edges with a single row of rather strong deflected bristles, about 12 in number. The hyoid bones converge on the top of the head as usual, but do not proceed farther forward than opposite the centre of the eye, terminating at the distance of 4 twelfths from the base of the bill, in which respect they contrast strongly with those of the Hairy Woodpecker. The œsophagus is 2¼ inches long, its width scarcely 1 twelfth, it being in its contracted state narrower than the trachea; the proventriculus enlarges to 2 twelfths. The stomach is elliptical, 7½ twelfths long, 5½ twelfths in breadth, its muscles well developed ; the epithelium thin, tough, rugous, and of a reddish-brown colour. It is filled with farinaceous vegetable substances of a whitish colour. Intestine of moderate length, wide, 8 inches long, its width at the upper part 2 twelfths. No cœca. Trachea 1 inch 5 twelfths long, its breadth nearly 1 twelfth; its contractor muscles moderate; its rings about 50; the bronchial half rings 12. The salivary glands are of large size.

THE RAMPING TRUMPET-FLOWER.

BIGNONIA CAPREOLATA.

This species is met with only in the Southern Districts. It is rather rare in Louisiana, but abounds in Georgia, Alabama, and the Floridas. The flowers are destitute of odour. Humming-birds delight to search for food in them, as well as in those of other species of the genus.

GAIRDNER'S WOODPECKER.

PICUS GAIRDNERII, *Aud.*

(Not figured.)

This curious little Woodpecker is so very similar to *Picus pubescens* in form, size, and colour, that one can scarcely distinguish it, its affinity to that species being as strict as that of *Picus villosus* to *P. canadensis*. Its bill is slightly stronger; but the greatest difference is found in the toes, which are very much larger, as will be seen from the following measurements.

	Picus Gairdnerii.	Picus pubescens.
Tarsus,	$\frac{7\frac{1}{2}}{12}$	$\frac{7}{12}$
Hind toe,	$\frac{3\frac{1}{2}}{12}$	$\frac{2}{12}$
Its claw,	$\frac{2\frac{1}{2}}{12}$	$\frac{2\frac{1}{2}}{12}$
Second toe,	$\frac{4\frac{1}{2}}{12}$	$\frac{4\frac{1}{2}}{12}$
Its claw,	$\frac{4\frac{1}{2}}{12}$	$\frac{4}{12}$
Third toe,	$\frac{5\frac{1}{2}}{12}$	$\frac{5}{12}$
Its claw,	$\frac{5}{12}$	$\frac{4}{12}$
Fourth toe,	$\frac{7}{12}$	$\frac{6}{12}$
Its claw,	$\frac{4\frac{1}{2}}{12}$	$\frac{4\frac{1}{2}}{12}$

These differences may appear slight, and were there intermediate gradations, would be of no value, but I find that eight individuals of *P. pubescens* present no material deviation from the above measurements, while my specimen of *P. Gairdnerii* may be at once distinguished by the greater

length especially of the outer or reversed toe. Its bill is also considerably thicker at the base, although otherwise similar. Another difference presents itself in the relative length of some of the quills, the fifth being longest in *P. Gairdnerii*, the fourth in *P. pubescens*.

GAIRDNER'S WOODPECKER, *Picus Gairdnerii*, Aud. Orn. Biog., vol. v. p. 317.

Length, $6\frac{8}{12}$; wing $3\frac{10}{12}$.
Columbia River.
Adult Male.

Bill longish, straight, strong, tapering, angular, slightly compressed, and at the tip truncate; mandibles of equal length, both straight in their outline, the ridge of the upper very narrow, its sides sloping, the lateral ridge nearer the margin; the nostrils linear oblong, basal, concealed by tufts of reversed bristly feathers.

Head of moderate size, ovate; neck short. Feet short, rather strong; tarsus with a few large scutella before, thin-edged behind, with a series of large scales along the inner side; two toes before, two behind, the fourth or outer reversed toe considerably longer than the third, the first very short; claws strong, much compressed, well curved, very acute, those of the third and fourth toes nearly equal and largest.

Plumage very soft and blended; feathers of the middle part of the back very long and downy. Wings large, rounded, the first quill eight-twelfths long, the second an inch and seven-twelfths longer, the third seven and a quarter twelfths longer than the second, and three quarters of a twelfth shorter than the fourth, which is slightly exceeded by the fifth, the sixth a little shorter than the fourth; secondaries very broad, truncate. Tail rather long, cuneate, of ten feathers, of which the lateral are eight-twelfths shorter than the middle, all more or less slit at the point.

Bill greyish-blue, somewhat dusky above; feet bluish-grey; claws light blue, dusky at the end. The top of the head is black, as are a broad band behind the eye, part of the loral space, a band below the cheek, as well as the scapulars, wings, and four middle tail-feathers; there is a band of white over each eye, enlarging on the occiput and terminating in a broad band of bright crimson running across that part; another white band from below the eye, curving behind the ears, nearly meeting on the hind neck; the wings barred with squareish spots of white, and tipped with the same, there being on the outer webs of the third and fourth primaries five spots on the outer and four on the inner web; most of the coverts are also tipped with a white spot; a broad band of white down the middle of the back, the lateral tail-feathers are white, with two bars of black toward the end, and the base of

the inner web of the same colour; the next feather is similar, with more black at the base, and on both webs; the next black, with the terminal half of the outer web, a bar on the inner, and its tip white; the lower surface is white, but much soiled and of a dull greyish-brown tint, the lower tail-coverts with a slightly dusky spot toward the end.

Length to end of tail $6\frac{8}{12}$ inches; bill along the ridge $\frac{8}{12}$; wing from flexure $3\frac{10}{12}$; tail $2\frac{4}{12}$.

Between this and *P. pubescens* there is no difference as to colour, only the spots on the wings of the latter are much larger. Most individuals of *P. pubescens* have the same number of spots on the longer quills, but others have an additional pair.

A figure of this species will, if possible, be given at the end of the work.

RED-COCKADED WOODPECKER.

PICUS QUERULUS, *Wils.*

PLATE CCLXIV.—MALES AND FEMALE.

This species, which was first described by WILSON, is found abundantly from Texas to New Jersey, and inland as far as Tennessee. Pine-barrens suit it best, and it is nowhere more numerous than in those of the Floridas, Georgia, and South Carolina, where, at any time of the year, one is sure to be saluted by its peculiar note, or to see it busily and cheerfully engaged in searching for food, or flitting from one tree to another.

In quickness of motion it approaches more to the Common or Banded Three-toed Woodpecker, than any other with which I am acquainted. It glides upwards and sidewise along the trunks and branches, on the lower as well as the upper side of the latter, moving with astonishing alertness, and at every motion emitting a short, shrill and clear note, which can be heard at a considerable distance. While on wing it also emits this note at the commencement of each curve of its undulated flight. Often when alighted it issues a tremulous note, which is also short, sharp, and shrill, and during the love-season its cries resound through the pine-woods. Near Bayou Sara in

Red-cockaded Woodpecker.

1. 2. Males 3. Female.

Drawn from Nature by J.J. Audubon F.R.S.F.L.S. Lith.d Printed & Col.d by J.T. Bowen Philad.a

Louisiana, I once slightly wounded two males, which I put into my hat in order to carry them home. The first, on being brought to the ground, was easily secured, but the case was different with the other, for it at once hopped off toward the nearest tree, crying loudly all the while, and on reaching it ascended as if unhurt. However, I obtained it by accidentally knocking off the bark with a clod of earth. It defended itself courageously, and pecked at my fingers with so much vigour that I was obliged to let it drop several times out of my hand. Confined in my hat, they remained still and sullen, and when I looked at them they both hid their heads, as if ashamed of their situation. Whenever I chanced to fire my gun, it alarmed them, and they uttered a plaintive cry, differing from their usual note while at liberty. One of them died before I reached the house, probably through the great heat; the other, however, was well, and I put it into a cage, every part of which it examined, until finding a spot by which it thought it might escape, it began to work there, and soon made the chips fly off. In a few minutes, it made its way out, and leaped upon the floor, uttering its common *cluck*, hopped to the wall, and ascended as if it had been on the bark of one of its favourite trees. The room being unfinished, the bricks were bare, and as it passed along, it peeped into the interstices, and seized the spiders and other insects which it found lurking in them. I kept this bird two days, but when I found that the poor thing could procure no food, I gave it its liberty, and was glad to find that its wounded wing was so far healed as to allow it to fly thirty or forty yards at a time, so that it had a good chance of being able to reach its favourite pines again, with the scent of which it was strongly imbued.

When on a high tree, it looks as if entirely black. Generally, too, even when seen close at hand, the red line over the eye is covered by the adjacent feathers; at least this was the case with the two individuals mentioned above. The one which died had its gizzard crammed with the heads of small ants and a few minute coleopterous insects. It is fond of the company of our small Woodpeckers, as well as of *Sylvia pinus* and *Parus carolinensis*.

I have found this bird mated in January in the Floridas, and engaged in preparing a breeding place in February. The nest is not unfrequently bored in a decayed stump about thirty feet high, the wreck of a noble pine, destroyed by the irresistible fury of a hurricane. The eggs, which are usually four, although I have found as many as six, are smooth and pure white. The young, like those of our other species, crawl out of their holes, and on the branches around wait for the food brought by their parents, until they are able to shift for themselves.

In the winter months, I have seen several of these birds enter a hole at

dusk, where they probably remained all night; and in cold drizzly weather I have observed them doing the same at various hours of the day. When wounded, I have several times seen them making toward these retreats. There is little difference between the sexes, excepting that the red line over the eye is wanting in the female. WILSON'S measurements are less than those of any individuals which I have examined.

It is generally believed that all Woodpeckers are strictly insectivorous; but this opinion is by no means correct, for many species feed on grain and fruits of various kinds. Some of them even come to the ground to search for those which have fallen from the trees, as I found to be the case with the present species, which I repeatedly observed so occupied in the Pine Barrens of the Floridas. On such occasions it is always silent. It moves in pairs at all seasons, and is extremely pugnacious during the period of incubation, when each male is constantly giving chase to intruders of its own kind. During these encounters, its cries are incessant, and much louder and sharper than on more ordinary occasions.

RED-COCKADED WOODPECKER, *Picus querulus*, Wils. Amer. Orn., vol. ii. p. 103.
PICUS QUERULUS, Bonap. Syn., p. 46.
RED-COCKADED WOODPECKER, Nutt. Man., vol. i. p. 577.
RED-COCKADED WOODPECKER, Aud. Orn. Biog., vol. v. p. 12.

Male, 8½, 14½. Female, 7⅞, 13¼.

From Texas to New Jersey, along the Atlantic districts. Common. In the interior of Lower Mississippi. Resident.

Adult Male.

Bill somewhat shorter than the head, straight, rather slender, tapering, angular, at the point compressed and abrupt; upper mandible with the dorsal line straight, the ridge sharp, the sides sloping, the nasal groove with a prominent narrow ridge, rather nearer the ridge than the edge at its commencement, but joining the latter about a third from the tip, the edges sharp and direct; lower mandible with the angle rather short and narrow, the dorsal line straight, the ridge sharp, the edges convex toward the end, the tip compressed, but abrupt. Nostrils basal, lateral, linear-oblong, broader at the base.

Head of moderate size, ovate, convex above; neck rather short; body moderate. Feet short, rather slender; tarsus short, anteriorly scutellate; laterally covered with angular scales, posteriorly with a row of narrow scutella; toes four; the first short, the second next in length, the fourth directed outwards and backwards, and longer than the third; claws large, strongly arched, compressed, deeply grooved on the sides, tapering to a very acute point.

Plumage very soft and blended; feathers at the base of the bill bristly and directed forwards so as to cover the nostrils. Wings long; the first quill extremely small, being only ten-twelfths long; the second four-twelfths shorter than the third, which is one-twelfth shorter than the fourth, this being the longest. Tail long, cuneate, of twelve feathers, the lateral very small, weak, and rounded, the rest strong, with the barbs worn at the end, the tip emarginate, the shafts being worn.

Bill greyish-blue, with the upper mandible dusky toward the ridge. Iris hazel. Feet greyish-blue, claws of the same colour, dusky along the ridge. The upper part of the head, the hind neck, the loral space, and a band down each side of the neck glossy black; feathers at the base of the bill, a band over the eye, and a large patch on the side of the head white. Margining the black behind the eye is a streak of bright carmine, formed by a series of very slender feathers. All the upper parts, including the wings, are blackish-brown, transversely banded with white. Tail black; the fourth feather obliquely white on the outer web toward the end, the next with the white extended to the inner webs toward the end, it being barred with black on the inner; the second white, with five black bands on the inner web and one on the outer; the first or lateral feather white, with a black patch near the base of the inner web. The lower parts are white, the sides of the lower part of the neck, and of the body, marked with oblong black spots.

Length to end of tail 8½ inches; extent of wings 14½; bill along the ridge $\frac{10}{12}$; wing from flexure $4\frac{8}{12}$; tail $3\frac{5}{12}$, the lateral feathers $1\frac{1}{12}$; tarsus $1\frac{8}{12}$; hind toe $\frac{21}{12}$, its claw $\frac{21}{12}$; inner toe $\frac{51}{12}$, its claw $\frac{51}{12}$; middle toe $\frac{6}{12}$, its claw $\frac{6}{12}$; outer toe $\frac{7}{12}$, its claw $\frac{6}{12}$.

Female.

The female is somewhat smaller, but resembles the male in colour, with the exception of wanting the red streak behind the eye.

Length to end of tail 7⅜ inches, to end of wings 6⅝, to end of claws 6⅜; extent of wings 13¼.

The roof of the upper mandible is slightly concave, with a prominent middle ridge; the lower mandible more concave, with two ridges and a median groove. The tongue is 10½ twelfths long, slender, its breadth 1 twelfth, its sides parallel; it tapers to a point at the end, where it is margined with acicular bristles directed backwards. The hyoid bones curve round the back of the head, converge, and run along the middle of the skull to the base of the bill, without curving to either side. The palate is flattened, the posterior aperture of the nares linear, with an anterior slit, which is margined with papillæ. The aperture of the mouth is 4½ twelfths in width.

The œsophagus, *a b*, is 2 inches 8 twelfths long narrow, uniform, its breadth 2 twelfths. The proventricular belt, *b*, is 4½ twelfths long. The stomach, *c d e*, is of moderate size, oblong, 8½ twelfths in length, 6 twelfths in breadth; its muscles rather strong, its tendons large, the epithelium dense, longitudinally rugous, and of a reddish colour. The intestine, *e f g h*, is 9 inches long, its upper portion 2 twelfths in diameter, its narrowest part 1¼ twelfths; the rectum 3 twelfths in diameter, gradually enlarging into the cloaca, *i*.

The trachea, which is 1 inch 8 twelfths long, and of about 65 rings, measures 1 twelfth across at the upper part, gradually contracts a little, and is furnished with strong contractor and sterno-tracheal muscles. The bronchi are of moderate length, with about 15 half-rings.

The contents of the stomach were remains of insects, and small round very hard dark brown seeds. During the autumnal and winter months, this species is wont to feed on the berries of several species of Smilax, on grapes, and at times even on the common *poke-berries*. I am also persuaded that whilst the *pines* are in bloom, much of their flowers is used, perhaps more as a relish, than as an essential article of food.

Audubons Woodpecker.

Male.

Drawn from Nature by J.J.Audubon.FRSFLS. Lith.ª Printed & Col.ª by J. T.ª Bowen. Phila.ª

AUDUBON'S WOODPECKER.

PICUS AUDUBONI. *Trudeau.*

PLATE CCLXV.—ADULT.

My talented and amiable friend Dr. JAMES TRUDEAU, has described this species in the seventh volume of the Journal of the Academy of Natural Sciences of Philadelphia, where he says, "Hunting in a wood fifteen miles from New Orleans, on the 26th of April, 1837, my attention was attracted by a very extraordinary note, and after some difficulty I succeeded in getting possession of the bird from which it proceeded. It was very wild, running on the trunks and limbs of trees with the agility peculiar to the family, always contriving to keep on the side of the trunk most distant from its pursuer. It was the species here described. I have frequently examined the spot in hopes of getting more; and although I have often heard its note, the bird has, in the very thick woods, eluded my pursuit. The sportsmen with whom I have spoken of it, suppose it to be a common species. It is probable that this curious bird, respecting which I have learned nothing farther, has escaped the observation of naturalists on account of its resemblance to the two species already named (the Hairy and Downy Woodpeckers)."

The specimen mentioned above was presented to me by its discoverer, my obligations to whom, on account of the honour which he has conferred upon me, I now gratefully acknowledge. My friend Mr. SWAINSON has also named after me a Woodpecker, procured in Louisiana, but which I believe to be only an immature specimen of *Picus pubescens.*

PICUS AUDUBONI, *Audubon's Woodpecker*, Trudeau, Journ. Acad. Nat. Sc. Philadelphia, vol. vii. p. 404.

AUDUBON'S WOODPECKER, *Picus Auduboni*, Aud. Orn. Biog., vol. v. p. 194.

Adult, ♂, 13½.

Louisiana.

Adult.

Bill about the length of the head, strong, straight, differing from that of any other North American Woodpecker in having both outlines a little convex, and both tips acute. Upper mandible with the ridge very narrow, the sides sloping and flat, the lateral ridge near the margin, the edges direct,

sharp, and overlapping; lower mandible with the angle rather long and narrow, the ridge very narrow, the sides convex, the edges sharp and inflected. Nostrils basal, oblong, near the edge, and concealed by the feathers.

Head rather large, ovate; neck short; body rather full. Feet short; tarsus feathered anteriorly nearly half-way down, scutellate in the rest of its extent, and having a series of large scales internally behind; toes four; the first very short, the fourth longer than the third, which is united with the second at the base. Claws large, well curved, extremely compressed, laterally grooved, very acute.

Plumage very soft, full, and blended. Wings rather long, the first quill only an inch and a twelfth in length, the second five-twelfths shorter than the third, which is one-twelfth shorter than the fourth, and an inch longer than the sixth. Tail of moderate length, cuneate, of twelve feathers, of which the outer is only eight-twelfths long, the next ten-twelfths shorter than the longest.

Bill greyish-blue. Iris brown. Feet bluish-grey, claws brown. The upper parts are black; the tufts covering the nostrils white; on the anterior part of the top of the head are some feathers largely tipped with yellow, a band of white passes over the eye; the loral space and that behind the eye are black; a band of white passes from the angle of the mouth to the side of the occiput, and beneath it is a narrow band of black; the feathers along the middle of the back are tipped with white; the wings are spotted with white, some of the smaller coverts, the larger coverts, and all the quills being marked with that colour, of which there are six spots on the outer and four on the inner web of the longer primaries; the first primary has a slight spot at the base of the outer web, and two spots on the inner; the second has two spots on the outer, and three on the inner web; all the primaries except the two outer have a terminal white spot, the secondaries two, one on the outer, the other on the inner web. The four middle tail-feathers are black, the rest white toward the end, that colour enlarging so as to include almost the whole of the outer feathers. The lower parts are dull white, having a tinge of brown, the sides very faintly barred with dusky.

Length to end of tail 7 inches; extent of wings 13½; bill along the ridge $\frac{10}{12}$, along the edge of lower mandible 1; wing from flexure 4¼; tail $2\frac{5}{12}$; tarsus $\frac{9}{12}$; hind toe $\frac{7}{12}$, its claw $\frac{2\frac{1}{2}}{12}$; second toe $\frac{5}{12}$, its claw $\frac{4\frac{1}{2}}{12}$; third toe $\frac{6}{12}$, its claw $\frac{5\frac{1}{2}}{12}$; fourth toe $\frac{6\frac{1}{2}}{12}$, its claw $\frac{5}{12}$.

As Dr. TRUDEAU remarks, "this species resembles the Hairy and Downy Woodpeckers in plumage, but is very distinct, and is intermediate in size between them."

Red-breasted Woodpecker.

1. Male. 2. Female.

Drawn from Nature by J.J.Audubon,F.R.S.F.L.S. Lith.d Printed & Col.d by J. T. Bowen, Philad.a

RED-BREASTED WOODPECKER.

PICUS RUBER, *Gmel.*

PLATE CCLXVI.—MALE AND FEMALE.

Several specimens of this Woodpecker, which were procured by Mr. TOWNSEND on the Columbia river, are in my possession; but I regret that I have no other information to communicate respecting its habits than what is contained in the following note from my friend THOMAS NUTTALL, Esq., who says, "This species, seen in the forests of the Columbia and the Blue Mountains of the same country, has most of the habits of the common Red-headed species. It is, however, much less familiar, and keeps generally among the tall fir-trees, in the dead trunks of which it burrows out a hole for a nest, sometimes at a great elevation. On approaching one which was feeding its young in one of these situations, it uttered a loud reverberating *t'rr t'rr*, and seemed angry and solicitous at my approach. The same species also inhabits Upper California as well as the north-west coast up to Nootka. It is found eastward as far as the central chain of the Rocky Mountains." An egg taken from a nest which contained four, is an inch and a quarter in length, three-fourths in breadth, smooth, equally rounded at both ends, though somewhat elongated, and pure white.

PICUS RUBER, Gmel. Syst. Nat., vol. i. p. 429. Lath. Ind. Ornith., vol. i. p. 228.
RED-BREASTED WOODPECKER, *Picus ruber*, Aud. Orn. Biog., vol. v. p. 179.

Male, 8, 14. Female, 8; wing, $5\frac{2}{12}$.

Upper California. Columbia river. Nootka. Common. Migratory.

Adult Male.

Bill about the length of the head, straight, strong, angular, compressed toward the tip, which is slightly truncate and cuneate. Upper mandible with the dorsal line very slightly convex, the ridge very narrow, the sides sloping, concave at the base, slightly convex toward the end, the lateral angle farther from the ridge than from the margin at its commencement, and terminating on the edge about half-way, the edges sharp, direct, overlapping. Lower mandible with the angle short and rather wide, the crural outline straight, the dorsal ascending and straight, the sides sloping outwards and slightly convex, the tip narrow. Nostrils linear-oblong, basal, concealed by the feathers, and placed much nearer the margin than the ridge.

Head rather large, ovate; neck rather short; body full. Feet very short; tarsus very short, feathered anteriorly one-third down, in the rest of its extent covered with a few large scutella; sharp-edged and having internally small scutella behind; toes four; first toe small; fourth slightly longer than third; second and third united at the base; claws large, much curved, compressed, laterally grooved, very acute.

Plumage very soft, full, and blended. A tuft of reversed stiffish feathers on each side of the base of the upper mandible, concealing the nostrils; the feathers at the angle of the lower mandible also stiffish. Wings rather long: the first quill very small, being only ten-twelfths long, the second nine-twelfths shorter than the third, which is two-twelfths shorter than the fourth, the latter being the longest, and exceeding the fifth by a twelfth and a half; secondaries rounded, and somewhat emarginate. Tail of moderate length, cuneate, of twelve feathers, of which the lateral is only eleven-twelfths long, and one inch five and a half-twelfths shorter than the next, which is eleven-twelfths shorter than the middle, and slightly worn, the rest having the tip slit, the shaft terminating abruptly.

Bill bluish-grey, dusky toward the end. Feet bluish-grey, claws brown. The upper part of the head, the neck all round, and a portion of the breast deep carmine; the tufts over the nostrils yellow, and from them a white band to beneath the eye; the feathers of the eyelids black; the middle of the breast and the abdomen yellow; the feathers of the sides of the body and rump, with the lower tail-coverts, barred, or marked with a pointed dusky spot, their edges yellowish-white. The upper parts are black, the middle of the back spotted with yellowish-white, the rump and upper tail-coverts white on the inner webs and toward the tip on both. There is a large patch of white on the wing, formed by some of the smaller coverts, the first row of small coverts and the terminal portions of the outer webs of the secondary coverts. The quills are black, the three longest with eight spots on the outer, and five on the inner web, the second with four on the inner web and two on the outer, the first with two on the inner web; the secondaries more or less tipped with white, but several of them without spots on the outer web. The tail feathers are black, the two middle with three or four white spots on the inner web, or white, with several black bands. Sometimes the lateral feathers are spotted on the outer edge, and several have a terminal white edging.

Length to end of tail 9 inches; bill along the ridge $\frac{11}{12}$, along the edge of lower mandible 1 $\frac{1}{2}$; wing from flexure $5\frac{4}{12}$; tail $3\frac{10}{12}$; tarsus $\frac{9}{12}$; first toe $\frac{3}{12}$, its claw $\frac{3}{12}$; second toe $\frac{7}{12}$, its claw $\frac{4}{12}$; third toe $\frac{8}{12}$, its claw $\frac{5}{12}$; fourth toe $\frac{7}{12}$, its claw $\frac{4}{12}$.

Adult Female.

Yellow-bellied Woodpecker.

1. Male. 2. Female.

Prunus Carolinianа.

Drawn from Nature by J. J. Audubon, F.R.S.F.L.S.

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The female differs only in having the tints somewhat fainter, the white markings on the back smaller, and the yellow of the lower parts duller.

Length to end of tail 8¼ inches; bill along the ridge 1½; wing from flexure 5$\frac{3}{12}$; tail 3$\frac{7}{12}$.

THE YELLOW-BELLIED WOODPECKER.

PICUS VARIUS, *Linn.*

PLATE CCLXVII.—MALE AND FEMALE.

This beautiful species returns to Louisiana and the other Southern States about the beginning of October. It remains there during the winter, and takes its departure before the beginning of April, after which period I have never observed it in these districts. It is seen in Kentucky, and a few breed there; but the greater number return to the middle and especially the northern parts of the Union. During the winter months, it associates with the Hairy, the Red-bellied, and the Downy Woodpeckers. Its notes, which are extremely plaintive, differ widely from those of any other species, and are heard at a considerable distance in the woods.

The Yellow-bellied Woodpecker prefers the interior of the forest during spring and summer, seldom showing itself near the habitations of man at those seasons. It is a sly and suspicious bird, spending most of its time in trees which have close branches and dense foliage. It generally bores its nest at a considerable height, and usually in the trunk of an undecayed tree, immediately beneath a large branch, and on its southern side. The hole is worked out by the male as well as the female, in the manner followed by other species, and to the depth of from fifteen to twenty-four inches. The aperture is just large enough to admit the birds, but the hole widens gradually towards the bottom, where it is large and roomy. The eggs, which are from four to six, and pure white, with a slight blush, are deposited on the chips without any nest. The young seldom leave the hole until they are fully fledged, after which they follow their parents, in a straggling manner, until the approach of spring, when the males become shy towards each other, and quarrel whenever they meet, frequently erecting the feathers of the head and fighting desperately.

They fly through the woods with rapidity, in short undulations, seldom going farther at a time than from one tree to another. I never observed one of these birds on the ground. Their food consists of wood-worms and beetles, to which they add small grapes and various berries during autumn and winter, frequently hanging head downwards at the extremity of a bunch of grapes, or such berries as those you see represented in the Plate.

I found this species extremely abundant in the upper parts of the State of Maine, and in the provinces of New Brunswick and Nova Scotia, but saw none in Newfoundland or Labrador.

While travelling I observed that they performed their migration by day, in loose parties or families of six or seven individuals, flying at a great height, and at the intervals between their sailings and the flappings of their wings, emitting their remarkable plaintive cries. When alighting towards sunset, they descended with amazing speed in a tortuous manner, and first settled on the tops of the highest trees, where they remained perfectly silent for awhile, after which they betook themselves to the central parts of the thickest trees, and searched along the trunks for abandoned holes of Squirrels or Woodpeckers, in which they spent the night, several together in the same hole. On one occasion, while I was watching their movements at a late hour, I was much surprised to see a pair of them disputing the entrance of a hole with an Owl (*Strix asio*), which for nearly a quarter of an hour tried, but in vain, to drive them away from its retreat. The Owl alighted sidewise on the tree under its hole, swelled out its plumage, blew and hissed with all its might; but the two Woodpeckers so guarded the entrance with their sharp bills, their eyes flushed, and the feathers of their heads erected, that the owner of the abode was at length forced to relinquish his claims. The next day at noon I returned to the tree, when I found the little nocturnal vagrant snugly ensconsed in his diurnal retreat.

This species of Woodpecker does not obtain the full beauty of its plumage until the second spring; and the variety of colouring which it presents in the male and female, the old and young birds, renders it one of the most interesting of those found in the United States.

YELLOW-BELLIED WOODPECKER, *Picus varius*, Wils. Amer. Orn., vol. i. p. 147.

PICUS VARIUS, Bonap. Syn., p. 45.

PICUS (DENDROCOPUS) VARIUS, *Yellow-bellied Woodpecker*, Swains. and Rich. F. Bor. Amer., vol. ii. p. 309.

YELLOW-BELLIED WOODPECKER, Nutt. Man., vol. i. p. 574.

YELLOW-BELLIED WOODPECKER, *Picus varius*, Aud. Amer. Orn., vol. ii. p. 519; vol. v. p. 537.

Male, 8½, 15

Breeds from Maryland northward to the Saskatchewan. Rather rare in

the interior in summer. Many spend the winter in the Southern and Western Districts.

Adult Male.

Bill longish, straight, strong, tapering, compressed towards the end, slightly truncated and cuneate at the tip; mandibles of equal length, both nearly straight in their dorsal outline, their sides convex, excepting at the base. Nostrils basal, lateral, elliptical, open, covered by the feathers, and having a sharp ridge passing over them to the edge of the bill near the middle. Head of moderate size, neck rather short, body rather robust. Feet rather short; tarsus compressed, anteriorly scutellate, laterally covered with hexagonal scales, sharp behind; two toes before, united as far as the second joint; two behind, the first very small, the second equal in length to the third, claws strong, much curved, compressed, with a short deep groove on each side, very acute.

Plumage soft, rather blended, slightly glossed, that of the head shining. Wings long, the first quill extremely small, fourth longest, third nearly equal, second shorter than fifth; secondaries slightly emarginate. Tail of ordinary length, cuneate, of ten pointed feathers, having very short shafts.

Bill brownish-black. Iris brown. Feet greyish-blue. Forehead and crown, chin and sides of the throat blood-red, the two patches margined with greenish-black, of which colour is a broad band on the occiput, and a large space on the lower neck and fore part of the breast, a broad band of white from the eye margining the back of the occiput; another from the base of the upper mandible down the side of the neck, the interspace black. Scapulars black, tinged with green. Wing-coverts and quills black, the first row of smaller coverts white, excepting at the base, those of the outer secondary coverts are white on the outer webs, and the quills, excepting the first, are spotted on the outer and inner edges, and more or less tipped with the same. The back is variegated with black and brownish-white. Tail-feathers black, the outer margined with white towards the tip, the two inner spotted with white on the inner web. Middle of the breast yellow, sides dusky yellow, variegated with brownish-black.

Length 8½ inches, extent of wings 15; bill along the ridge $\frac{10}{12}$, along the edge $1\frac{1}{12}$; tarsus $\frac{10}{12}$.

Adult Female.

The female resembles the male, but the throat is white, and the yellow of the lower parts less pure.

THE ARCTIC THREE-TOED WOODPECKER.

PICUS ARCTICUS, *Swains.*

PLATE CCLXVIII.—MALES AND FEMALE.

This curious species of Woodpecker is found in the northern parts of the State of Massachusetts, and in all portions of Maine that are covered by forests of tall trees, in which it constantly resides. I saw a few in the Great Pine Forest of Pennsylvania, and my friend, the Rev. JOHN BACHMAN, observed four near the Falls of Niagara, about twelve years ago, and is of opinion that some may breed in the upper part of the State of New York.

It is a restless, active bird, spending its time generally on the topmost branches of the tallest trees, without, however, confining itself to pines. Although it cannot be called shy, its habitual restlessness renders it difficult of approach. Its movements resemble those of the Red-cockaded Woodpecker, but it is still more petulant than that bird. Like it, it will alight, climb along a branch, seek for insects there, and in a very few moments remove to another part of the same tree, or to another tree at more or less distance, thus spending the day in rambling over a large extent of ground. Its cries also somewhat resemble those of the species above mentioned, but are louder and more shrill, like those of some small quadruped suffering great pain. During the middle hours of the day it becomes silent, and often retires to some concealed place to rest awhile. In the afternoon of warm days, it very frequently makes sorties after flying insects, which it seems to secure in the air with as much ease as the Red-headed Woodpecker. Besides insects, it also feeds on berries and other small fruits.

Its flight is rapid, gliding, and deeply undulated, as it shifts from one place to another. Now and then it will fly from a detached tree of a field to a considerable distance before it alights, emitting at every glide a loud shrill note. When alighted, the rolling tappings of its bill against a dead and dried branch are as sonorous as those of the Redhead. I never saw one on the ground, but I have not unfrequently met with them searching the decayed wood of a prostrate tree.

The nest of this species is generally bored in the body of a sound tree, near its first large branches. I observed no particular choice as to the timber, having seen it in oaks, pines, &c. The nest, like that of other allied species, is worked out by both sexes, and takes fully a week before it is

Arctic three-toed Woodpecker.

1. 2. Males. 3. Female.

Drawn from Nature by J.J.Audubon,F.R.S.F.L.S. Lith.ª Printed & Col.ª by J. T. Bowen, Philad.ª

completed, its usual depth being from twenty to twenty-four inches. It is smooth and broad at the bottom, although so narrow at its entrance as to appear scarcely sufficient to enable one of the birds to enter it. The eggs are from four to six, rather rounded, and pure white. Only one brood is raised in the season. The young follow their parents until autumn, when they separate and shift for themselves. They do not attain their full plumage until the second year.

The number of these Woodpeckers is greatly increased in the State of Maine during winter, by accessions from Nova Scotia, Newfoundland, and Labrador, in all which countries I have found the species in summer, but where, if I am rightly informed, few remain during severe winters.

PICUS TRIDACTYLUS, Bonap. Syn., p. 46.

NORTHERN THREE-TOED WOODPECKER, *Picus tridactylus*, Bonap. Amer. Orn., vol. ii. p. 14.

PICUS (APTERNUS) ARCTICUS, *Arctic Three-toed Woodpecker*, Swains. and Rich. F. Bor. Amer., vol. ii. p. 313.

NORTHERN THREE-TOED WOODPECKER, Nutt. Man., vol. i. p. 578.

THREE-TOED WOODPECKER, *Picus tridactylus*, Aud. Orn. Biog., vol. ii. p. 198.

Male, 10½, 16.

From the northern parts of New York to the Fur Countries, as well as along the eastern declivities of the Rocky Mountains. Rather common. Partially migratory.

Adult Male.

Bill longish, straight, strong, angular, compressed toward the tip, which is slightly truncate and cuneate; upper mandible with the dorsal line straight, the ridge distinct, the sloping sides quite flat, the lateral angle or ridge close to the edges, which are acute and overlapping; lower mandible with the ridge distinct, the sides convex, edges sharp and inflected. Tongue comparatively shorter than that of the *Picus villosus*, but of the same form, the extensile part being vermiform, the tip flat above, convex below, and serrated backwards on the thin edges. Nostrils basal, elliptical, covered by the feathers. Head rather large, neck short, body robust. Feet very short; tarsus scutellate before and behind; two toes before, one only behind, which is versatile and larger, all scutellate above; claws strong, extremely compressed, very acute, and uncinate.

Plumage blended, glossy, on the back and wings rather compact. Feathers of the top of the head stiff and silky. Wings longish, third and fourth quills longest and equal. Tail graduated, of twelve decurved stiff feathers, worn to a point, excepting the outermost, which is extremely small. Base of the bill covered by recumbent bristly feathers.

Bill bluish-black, the lower mandible greyish-blue, as are the feet, the scutella and claws black. Iris bluish-black. The general colour of the upper parts is deep glossy black, the head with blue reflections, the back with green. Crown of the head yellow, tinged with orange. Quills blackish-brown, the outer primaries with seven rows of white spots. Two middle tail-feathers black, two next of the same colour, but with three cream-coloured spots on the edge of the outer web towards the end; two next black at the base, cream-coloured towards the end, black at the tip; two next cream-coloured, with little black at the base, and a mere touch of black on the tip; two next of the same colour, with very little black at the base; the two outermost, which are very short, rounded, and generally concealed, barred with black and cream-colour. A white band from the base of the mandible passes under the eye, and there is a very slender line of the same behind it. Throat, fore neck, and anterior part of the breast, white; the rest of the under parts also white, but barred with black.

Length 10½ inches, extent of wings 16; bill along the ridge $1\frac{2}{12}$, along the edge $\frac{7}{12}$; tarsus $\frac{11}{12}$, middle toe and claw $\frac{11}{12}$, hind toe and claw $1\frac{1}{4}$.

Adult Female.

The female wants the yellow patch on the crown of the head, and has the line of white behind the eye rather more conspicuous, but in other respects resembles the male.

BANDED THREE-TOED WOODPECKER.

PICUS HIRSUTUS, *Vieill.*

PLATE CCLXIX.—MALE AND FEMALE.

The difference between this bird and that described under the name of *Picus tridactylus* was unknown to me until clearly pointed out by the minute and accurate description of Mr. SWAINSON in the Fauna Boreali-Americana. Indeed I had looked upon it as the young of the species just mentioned. Not having met with it myself, I can only refer you to the very short notice of Dr. RICHARDSON, who says: "This bird exists in all the forests of spruce-fir lying between Lake Superior and the Arctic Sea, and it is the most common Woodpecker north of the Great Slave Lake. It much

Banded three-toed Woodpecker.

1. Male 2. Female.

Drawn from Nature by J.J.Audubon F.R.S.F.L.S

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resembles the *P. villosus* (by which I presume is meant *P. canadensis*, as already explained) in its habits, except that it seeks its food principally on decaying trees of the pine tribe, in which it frequently makes holes large enough to bury itself. It does not migrate."

I have represented the male and the female, from specimens lent to me by the Council of the Zoological Society of London.

PICUS HIRSUTUS, Vieill. Ois. de l'Amer., vol. ii. p. 124.

PICUS (APTERNUS) TRIDACTYLUS, *Common Three-toed Woodpecker*, Swains and Rich. F. Bor. Amer., vol. ii. p. 311.

COMMON THREE-TOED WOODPECKER, *Picus hirsutus*, Aud. Orn. Biog., vol. v. p. 184.

Male, 9 ; wing, $4\frac{5}{12}$.

From Lake Superior to the Arctic Sea. Abundant. Resident.

Adult Male.

Bill about the length of the head, straight, strong, angular, depressed at the base, compressed toward the tip, which is very slightly truncate and cuneate. Upper mandible with the dorsal line straight, the ridge very narrow, the sides sloping and flat, the lateral angle much nearer the edge, which is sharp, direct, and overlapping. Lower mandible with the angle short and rather wide, the dorsal line straight, the ridge narrow, the sides convex, the edges inflected, the tip pointed. Nostrils oblong, basal, concealed by the feathers, and placed near the margin.

Head large, ovate ; neck rather short ; body full. Feet very short ; tarsus short, compressed, feathered anteriorly more than one-third down, scutellate in the rest of its extent, as well as behind on the inner side ; toes three, the first wanting ; the fourth or outer reversed toe considerably longer than the third, which is united to the inner at the base ; all scutellate above. Claws large, much curved, compressed, laterally grooved, very acute.

Plumage very soft, full, blended. A large tuft of reversed stiffish feathers on each side of the base of the upper mandible, concealing the nostrils ; the feathers in the angle of the lower mandible also stiffish and directed forwards. Wings rather long ; the first quill very small, being only eleven-twelfths long, the second five twelfths shorter than the third, which is one-twelfth shorter than the fourth, this being the longest, but scarcely exceeding the fifth ; secondaries broad and rounded. Tail of moderate length, cuneate, of twelve feathers, of which the lateral, which are rounded and unworn, are only one inch long, the next, also unworn, are one inch and one-twelfth shorter than the middle.

Bill bluish-grey, dusky toward the end. Feet bluish-grey, the scutella and claws black. The general colour of the upper parts is deep glossy black,

the head with blue reflections, the back and wings tinged with brown. The tufts over the nostrils are dull yellow; the anterior part of the head pale yellow, spotted with white; a band of white, with small dusky lines, passes from the angle of the mouth to the occiput; the back is transversely banded with white; the quills are brownish-black, spotted and tipped with white, the four longest primaries with seven spots on the outer, and five on the inner web, on most of the secondaries five on each web. The four middle tail-feathers are black, the next black, largely tipped with white, the rest white, but, except the outer small feathers, with a black band at the base. The lower parts are white, excepting the sides, and lower wing-coverts, which are banded with black.

Length to end of tail 9 inches; bill along the ridge 1, along the edge of lower mandible $1\frac{3}{12}$; wing from flexure $4\frac{5}{12}$; tail $3\frac{1}{2}$; tarsus $\frac{9}{12}$; second toe $\frac{4}{12}$, its claw $\frac{4}{12}$; third toe $\frac{7}{12}$, its claw $\frac{6}{12}$; fourth toe $\frac{7}{12}$, its claw $\frac{6}{12}$.

Adult Female.

The female, which is somewhat smaller, differs from the male in wanting the yellow patch on the head, the whole of that part being black, with small white spots.

RED-BELLIED WOODPECKER.

PICUS CAROLINUS, *Linn.*

PLATE CCLXX.—MALE AND FEMALE.

Much of what I have said respecting the habits of several of our Spotted Woodpeckers applies to the present species, which differs, however, in the greater extent of its migration in the spring and summer months, when the greater number of those which return from the south to our Middle and Eastern Districts proceed considerably farther northward than the Hairy Woodpecker, although not so far as the Canadian. In winter I have found the Red-bellied Woodpecker the most abundant of all in the pine barrens of the Floridas, and especially on the plantations bordering the St. John's river, where on any day it would have been easy to procure half a hundred. Indeed on this account, and from its well-known notes, the officers and men

Red-bellied Woodpecker.

1. Male. 2. Female.

Drawn from Nature by J.J.Audubon,F.R.S.F.L.S. Lith.d Printed & Col.d by J.T. Bowen, Phila.a

of the United States schooner Spark, as well as my assistants, always spoke of it by the name of *chaw-chaw*. Perhaps it partly obtained this name from the numbers of it cooked by the crew in the same manner as the dish known to sailors by the same name. It is, however, less common in the United States than the Hairy Woodpecker; but its range is as extensive, for I have found it from the Texas to the extremities of the British provinces of Nova Scotia, and as far inland as I have travelled. It appears, however, that it does not inhabit the Fur Countries, as no mention is made of it by Dr. RICHARDSON, in the Fauna Boreali-Americana. It is generally more confined to the interior of the forests, especially during the time of its breeding, than the Hairy Woodpecker, although in winter I have found it quite as easily approached. In autumn it frequently occurs in the corn-fields, where it takes its share of the grain, in common with the Hairy, the Downy, and other Woodpeckers. It is a lively and active bird, fond of rolling its tappings against the decayed top-branches of trees, often launching forth after passing insects, and feeding during winter on all such berries as it can procure. Its flight is strong and better sustained than that of the Yellow-bellied or Hairy Woodpeckers, and, like the Golden-winged species, it not unfrequently alights across the smaller branches of the trees, a habit which, I assure you, is oftener exhibited than has been supposed, by all our species of this interesting tribe of birds.

I never found its nest in Louisiana or South Carolina; but it is not uncommon to meet with it in Kentucky; and from Maryland to Nova Scotia these birds breed in all convenient places, usually more in the woods than out of them; although I have found their nests in orchards in Pennsylvania, generally not far from the junction of a branch with the trunk. The hole is bored in the ordinary manner. The eggs are seldom more than four in number; they measure one inch and half an eighth in length, three-fourths of an inch in breadth, are of an elliptical form, smooth, pure white, and translucent. In so far as I have been able to discover, this species produces only one brood in a season. The young remain in or about the nest until able to fly well.

The difference which this species exhibits in the sound of its notes has always been a matter of interest to me; they fall upon the ear as if the bird were suffering from a severe catarrh, and yet may be heard at times at the distance of a hundred yards. They resemble the syllable *chow* or *chaw*, quickly repeated during its movements, sometimes singly, but more usually doubled.

It feeds on all sorts of insects and larvæ which it can procure, and at certain periods its flesh is strongly impregnated with the odour of its food. When procured in any part of the woods that have been burnt, the feathers

of its lower parts are almost black, from the carbonaceous matter adhering to them; and generally in winter, at least in the Floridas, I have found its plumage more soiled than in summer. I have represented a male and a female, in their perfect spring plumage.

RED-BELLIED WOODPECKER, *Picus carolinus*, Wils. Amer. Orn., vol. i. p. 113.
PICUS CAROLINUS, Bonap. Syn., p. 45.
RED-BELLIED WOODPECKER, Nutt. Man., vol. i. p. 572.
RED-BELLIED WOODPECKER, *Picus carolinus*, Aud. Orn. Biog., vol. v. p. 169.

Male, 7¾, 15¾. Female, 8, 14½.

Breeds from Kentucky in the West, and from Maryland to Nova Scotia and Canada. Abundant in winter in all the Southern States, from Carolina to Texas, and especially in the Floridas.

Adult Male.

Bill about the length of the head, nearly straight, being very slightly decurved or arched, strong, angular, compressed toward the tip, which is truncate and cuneate. Upper mandible with the dorsal line somewhat arched, the ridge very narrow, the sides sloping but convex, the lateral angle slight, near the ridge, the edges sharp, direct, overlapping. Lower mandible with the angle short and rather narrow, the crural outline concave, the dorsal line ascending and straight, the sides ascending and convex, the edges sharp and inflected, the tip narrow. Nostrils oblong, basal, concealed by the feathers, and placed about half-way between the ridge and the edge.

Head of moderate size, ovate; neck rather short; body full. Feet very short; tarsus very short, feathered anteriorly one-third down, in the rest of its extent covered with a few large scutella, compressed, with a series of small scutella internally behind; toes four; first toe small, fourth a little shorter than third, second and third united at the base; all scutellate above; claws large, much curved, compressed, laterally grooved, very acute.

Plumage full, soft, and blended. A tuft of reversed stiffish feathers on each side of the base of the upper mandible, concealing the nostrils; the feathers in the angle of the lower mandible also stiffish. Wings rather long; the first quill very small, being only an inch and four-twelfths long, six and a half twelfths shorter than the third, which is two-twelfths shorter than the fourth; the latter the longest, the fifth almost equal; secondaries rounded, and slightly emarginate. Tail of moderate length, cuneate, of twelve feathers, of which the lateral, which are rounded and entire, are only an inch and a twelfth long, the next also unworn, are ten and a half twelfths shorter than the middle, which with those on each side have the tip slit, the shaft terminating abruptly.

Bill bluish-grey, dusky toward the end. Iris bright red. Feet dusky

bluish-grey, claws dark brown. The upper part of the head and the hind neck are of a shining bright carmine ; the back and scapulars transversely barred with black and white ; the rump and tail-coverts, with the white predominating; the smaller coverts, secondary coverts, and secondary quills, are also brownish-black, barred with white ; the primary coverts unspotted ; the primary quills patched or spotted with white at the base ; the inner with several spots on their inner web, and all narrowly margined externally and tipped with white. The middle tail-feathers are black, with an oblique band of white occupying part of the outer web, and the greater portion of the inner, which is barred or spotted with black ; the next three on each side are black, slightly tipped with white ; the next also black, with seven external and three internal white indentations ; the outer feathers black, tipped with white, but sometimes barred. The sides of the head and the lower parts are pale grey, the former and the chin yellowish and tinged with red, of which latter there is a shade over the breast, and a brighter tint on the abdomen ; the axillar feathers dusky, barred with white, the lower tail-coverts yellowish-white, with a central dusky streak or zigzag mark.

Length to end of tail, 9¼ inches, to end of wings 7⅞, to end of claws 8⅛ ; extent of wings 15¾ ; bill along the ridge 1 1/12, along the edge of lower mandible 1 4/12 ; wing from flexure 5¼ ; tail 3 7/12 ; tarsus 9/12 ; first toe 4/12 ; its claw 3/12 ; second toe 6/12, its claw 5/12 ; third toe 9/12, its claw 6/12 ; fourth toe 8/12, its claw 5/12. Weight 2½ oz.

Adult Female.

The female is somewhat inferior to the male in size, and differs in colour only in having the upper part of the head ash-grey, the feathers at the base of the upper mandible of a dull reddish-orange, the lower parts less tinged with red.

Length to end of tail 8 inches, to end of wings 7¼, to end of claws 8 ; extent of wings 14½. Weight 2½ oz.

In a specimen preserved in spirits, the roof of the mouth is nearly flat, with a median prominent line ; the posterior aperture of the nares linear, 9 twelfths long, and margined with papillæ. The tongue is 2 inches long, nearly cylindrical for 1½ inches, its terminal part tapering, slender, covered with a horny sheath, on each of the edges of which are 12 recurved acute bristles. The horns of the hyoid bone curve over the occiput, meet in the median line of the head, and reach as far forward as the vicinity of the right nostril, being, as usual, accompanied in their whole length by a muscle attached to the lower jaw. The œsophagus is 3¼ inches long, its average diameter 5 twelfths. The stomach is muscular, roundish. 10 twelfths long, and of the same breadth, its tendons circular and ¼ inch in diameter. Its contents are remains of insects and a large quantity of maize. The epi-

thelium is tough, longitudinally rugous, and of a reddish-brown colour. The intestine is 11¾ inches long, its average diameter 3½ twelfths. The rectum, which is 4 twelfths in width, gradually enlarges to the cloaca, which is of an oblong form, with a diameter of half an inch. No cœca.

The trachea is 2½ inches long, nearly of uniform diameter, only varying from 1½ twelfths to 1 twelfth, a little flattened, its rings about 60. The bronchi are slender, of moderate length, with about 15 half rings. The lateral muscles, which are moderately strong, terminate on the last ring of the trachea, from which also come off the sterno-tracheal muscles · there are no inferior laryngeal.

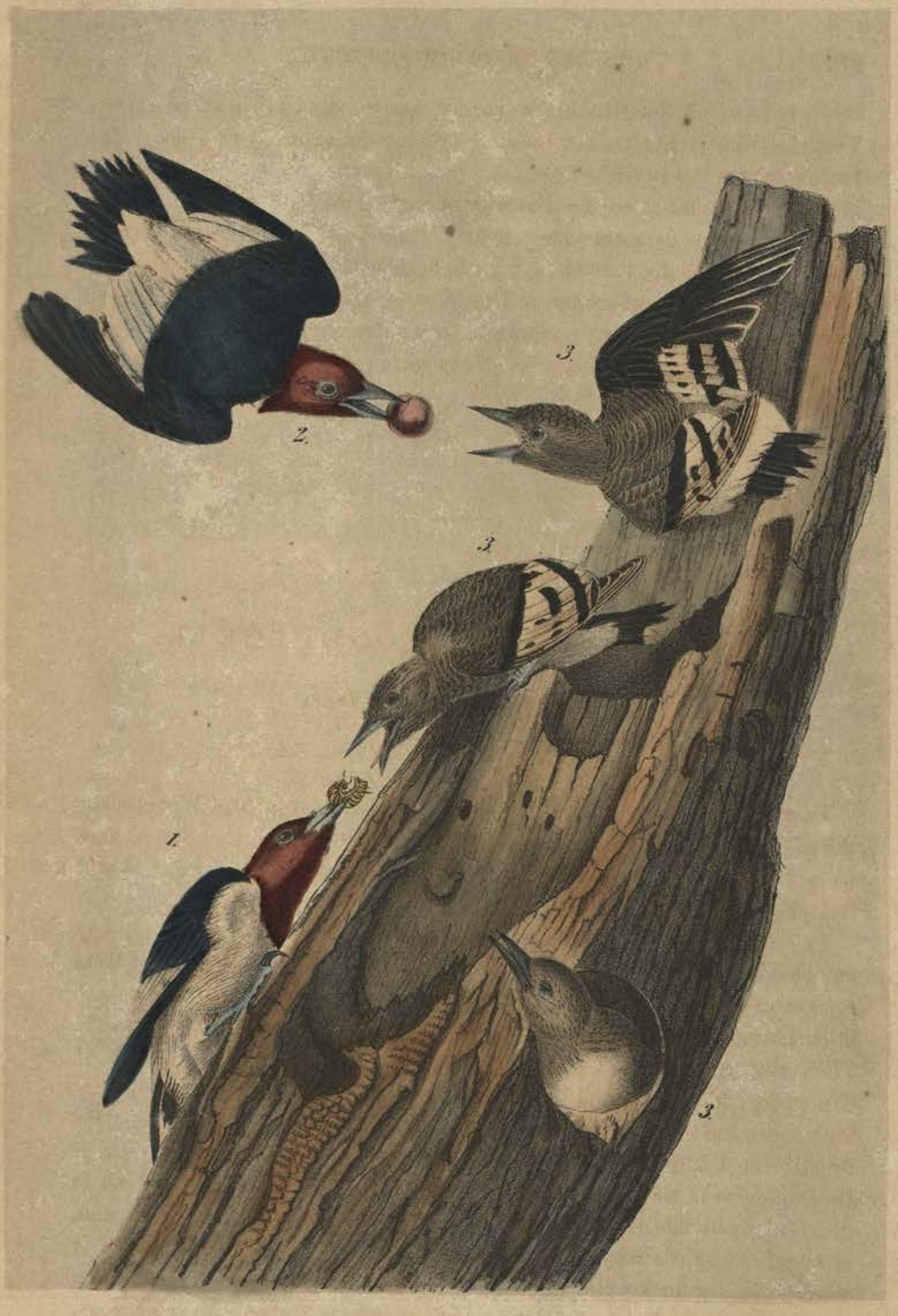
THE RED-HEADED WOODPECKER.

PICUS ERYTHROCEPHALUS, *Linn.*

PLATE CCLXXI.—MALE, FEMALE, AND YOUNG.

You have now, kind reader, under consideration a species of Woodpecker the general habits of which are so well known in our United States, that, were I assured of your having traversed the woods of America, I should feel disposed to say little about them.

The *Red-heads* (by which name this species is usually designated) may be considered as residents of the United States, inasmuch as many of them remain in the Southern Districts during the whole winter, and breed there in summer. The greater number, however, pass to countries farther south. Their migration takes place under night, is commenced in the middle of September, and continues for a month or six weeks. They then fly very high above the trees, far apart, like a disbanded army, propelling themselves by reiterated flaps of the wings, at the end of each successive curve which they describe in their flight. The note which they emit at this time is different from the usual one, sharp and easily heard from the ground, although the birds may be out of sight. This note is continued, as if it were necessary for keeping the straggling party in good humour. At dawn of day, the whole alight on the tops of the dead trees about the plantations, and remain in search of food until the approach of sunset, when they again one after another, mount the air, and continue their journey.



Red-headed Woodpecker.

1. Male. 2. Female. 3 Young.

Drawn from Nature by J.J. Audubon F.R.S.F.L.S.

Lith.d Printed & Col.d by J. T. Bowen, Phila.a

With the exception of the Mocking-bird, I know no species so gay and frolicksome. Indeed, their whole life is one of pleasure: They find a superabundance of food everywhere, as well as the best facilities for raising their broods. The little labour which they perform is itself a source of enjoyment, for it is undertaken either with an assurance of procuring the nicest dainties, or for the purpose of excavating a hole for the reception of themselves, their eggs, or their families. They do not seem to be much afraid of man, although they have scarcely a more dangerous enemy. When alighted on a fence stake by the road, or in a field, and one approaches them, they gradually move sidewise out of sight, peeping now and then to discover your intention; and when you are quite close and opposite, lie still until you are past, when they hop to the top of the stake, and rattle upon it with their bill, as if to congratulate themselves on the success of their cunning. Should you approach within arm's length, which may frequently be done, the Woodpecker flies to the next stake or the second from you, bends his head to peep, and rattles again, as if to provoke you to a continuance of what seems to him excellent sport. He alights on the roof of the house, hops along it, beats the shingles, utters a cry, and dives into your garden to pick the finest strawberries which he can discover.

I would not recommend to any one to trust their fruit to the Red-heads; for they not only feed on all kinds as they ripen, but destroy an immense quantity besides. No sooner are the cherries seen to redden, than these birds attack them. They arrive on all sides, coming from a distance of miles, and seem the while to care little about the satisfaction you might feel in eating some also. Trees of this kind are stripped clean by them. When one has alighted and tasted the first cherry, he utters his call-note, jerks his tail, nods his head, and at it again in an instant. When fatigued, he loads his bill with one or two, and away to his nest, to supply his young.

It is impossible to form any estimate of the number of these birds seen in the United States during the summer months; but this much I may safely assert, that a hundred have been shot upon a single cherry-tree in one day. Pears, peaches, apples, figs, mulberries, and even peas, are thus attacked. I am not disposed to add to these depredations those which they commit upon the corn, either when young and juicy, or when approaching maturity, lest I should seem too anxious to heap accusations upon individuals, who, although culprits, are possessed of many undeniably valuable qualities.

But to return. They feed on apples as well as on other fruit, and carry them off by thrusting into them their sharp bills when open, with all their force, when they fly away to a fence-stake or a tree, and devour them at leisure. They have another bad habit, which is that of sucking the eggs of small birds. For this purpose, they frequently try to enter the boxes of the

Martins or Blue-birds, as well as the pigeon-houses, and are often successful. The corn, as it ripens, is laid bare by their bill, when they feed on the top parts of the ear, and leave the rest either to the Grakles or the Squirrels, or still worse, to decay, after a shower has fallen upon it.

All this while the Red-heads are full of gaiety. No sooner have they satisfied their hunger, than small parties of them assemble on the tops and branches of decayed trees, from which they chase different insects that are passing through the air, launching after them for eight or ten yards, at times performing the most singular manœuvres, and, on securing their victim, return to the tree, where, immediately after, a continued cry of exultation is uttered. They chase each other on wing in a very amicable manner, in long, beautifully curved sweeps, during which the remarkable variety of their plumage becomes conspicuous, and is highly pleasing to the eye. When passing from one tree to another, their flight resembles the motion of a great swing, and is performed by a single opening of the wings, descending at first, and rising towards the spot on which they are going to alight with ease, and in the most graceful manner. They move upwards, sidewise, or backwards, without apparent effort, but seldom with the head downwards, as Nuthatches and some smaller species of Woodpeckers are wont to do.

Their curving from one tree to another, in the manner just described, is frequently performed as if they intended to attack a bird of their own species; and it is amusing to see the activity with which the latter baffles his antagonist, as he scrambles sidewise round the tree with astonishing celerity, in the same manner in which one of these birds, suspecting a man armed with a gun, will keep winding round the trunk of a tree, until a good opportunity presents itself of sailing off to another. In this manner a man may follow from one tree to another over a whole field, without procuring a shot, unless he watches his opportunity and fires while the bird is on wing. On the ground, this species is by no means awkward, as it hops there with ease, and secures beetles which it had espied whilst on the fence or a tree.

It is seldom that a nest newly perforated by these birds is to be found, as they generally resort to those of preceding years, contenting themselves with working them a little deeper. These holes are found not only in every decaying tree, but often to the number of ten or a dozen in a single trunk, some just begun, others far advanced, and others ready to receive the eggs. The great number of these holes, thus left in different stages, depends upon the difficulties which the bird may experience in finishing them; for whenever it finds the wood hard and difficult to be bored, it tries another spot. So few green or living trees are perforated by *this* species, that I cannot at the present moment recollect having seen a single instance of such an occurrence.

All Woodpeckers are extremely expert at discovering insects as they lie under the bark of trees. No sooner have they alighted, than they stand for a few moments motionless and listening. If no motion is observed in the bark, the Woodpecker gives a smart rap with its bill, and bending its neck sidewise lays its head close to it, when the least crawling motion of a beetle or even a larva is instantly discovered, and the bird forthwith attacks the tree, removes the bark, and continues to dig until it reaches its prey, when it secures and swallows it. This manner of obtaining food is observed particularly during the winter, when few forest fruits are to be found. Should they, at this season, discover a vine loaded with grapes, they are seen hanging to the branches by their feet, and helping themselves with their bill. At this time they also resort to the corn-cribs, and feed on the corn gathered and laid up by the farmers.

In Louisiana and Kentucky, the Red-headed Woodpecker rears two broods each year; in the Middle Districts more usually only one. The female lays from two to six eggs, which are pure white and translucent, sometimes in holes not more than six feet from the ground, at other times as high as possible. The young birds have at first the upper part of the head grey, but towards autumn the red begins to appear. During the first winter, the red is seen richly intermixed with the grey feathers, and, at the approach of spring, scarcely any difference is perceptible between the sexes.

The Red-headed Woodpecker is found in all parts of the United States. Its flesh is tough, and smells strongly of ants and other insects, so as to be scarcely eatable.

An European friend of mine, on seeing some of these birds for the first time, as he was crossing the Alleghanies, wrote me, on reaching Pittsburg, that he had met with a beautiful species of Jay, the plumage of which was red, black and white, and its manners so gentle, that it suffered him to approach so near as the foot of a low tree on which it was.

On being wounded in the wing, they cry as they fall, and continue to do so for many minutes after being taken, pecking at their foe with great vigour. If not picked up, they make to the nearest tree, and are soon out of reach, as they can climb by leaps of considerable length faster than can be imagined. The number of insects of all sorts destroyed by this bird alone is incalculable, and it thus affords to the husbandman a full return for the mischief which it commits in his garden and fields.

In Kentucky and the Southern States, many of these birds are killed in the following manner. As soon as the Red-heads have begun to visit a cherry or an apple tree, a pole is placed along the trunk of the tree, passing up amongst the central branches, and extending six or seven feet beyond the highest twigs. The Woodpeckers alight by preference on the pole, and

while their body is close to it, a man standing at the foot of the pole gives it a smart blow with the head of an axe, on the opposite side to that on which the Woodpecker is, when, in consequence of the sudden and violent vibration produced in the upper part, the bird is thrown off dead.

According to Dr. RICHARDSON, this species ranges in summer as far north as the northern shores of Lake Huron. A specimen in the Museum of the Hudson's Bay Company is stated to have been brought from the Columbia river. No mention is made of this species as occurring there by Mr. TOWNSEND, who saw it only on the Missouri. I found none in Newfoundland or Labrador, though it is not uncommon in Nova Scotia, from whence I have traced it to the Texas, where it breeds.

RED-HEADED WOODPECKER, *Picus erythrocephalus*, Wils. Amer. Orn., vol. i. p. 142.
PICUS ERYTHROCEPHALUS, Bonap. Syn., p. 45.
MELANERPES ERYTHROCEPHALUS, *Red-headed Woodpecker*, Swains. and Rich. F. Bor. Amer., vol. ii. p. 316.
RED-HEADED WOODPECKER, *Picus erythrocephalus*, Aud. Orn. Biog., vol. i. p. 141; vol. v. p. 536.

Male, 9, 17. Female, 8½.

Breeds from Texas to Nova Scotia, and throughout the interior to the head waters of the Missouri; thence to Lake Huron. Extremely common. Great numbers spend the winter in Louisiana.

Adult Male.

Bill longish, straight, strong, compressed toward the tip, which is vertically acute; upper mandible with the dorsal outline nearly straight, the edges acute and overlapping; under mandible with acute, slightly inflected edges. Nostrils basal, elliptical, direct, open. Head rather large; neck short; body robust. Feet short; tarsus and toes scutellate; two toes before and two behind, the inner hind toe shortest; claws strong, arched, acute.

Plumage glossy, generally blended, on the back and wings compact. Wings longish, third and fourth quills longest. Tail much rounded, of twelve decurved stiff feathers, worn by rubbing to an acute, ragged point. Palpebral region bare.

Bill light blue, dark at the tip. Feet of the same colour. Iris dark hazel, palpebral region bluish. Head and neck bright crimson. Back-wing-coverts, primaries and tail-feathers black, with blue reflections; rump and secondaries white, the shafts of the latter black. Breast and abdomen white, tinged with yellowish-brown; an irregular transverse narrow band of black at the junction of the red of the fore-neck and the white of the breast.

Length 9 inches, extent of wings 17; bill along the ridge 1, along the gap 1⅛; tarsus 1.

Adult Female.

The female differs from the male only in being smaller, and in having the tints of the plumage somewhat less vivid.

Length 8½ inches.

Young Birds.

The young, when fully fledged, have the bill and iris dark brown, the feet bluish. The head and neck are dark brownish-grey, mottled with small streaks of dark brown; the back and wing-coverts of the same colour, spotted with darker; the primaries brownish-black, margined with whitish, the secondaries yellowish-white, barred with black; the tail brownish-black, tipped with white; the rump and under parts greyish-white.

In a male preserved in spirits, the width of the mouth is 6½ twelfths. The tongue is 1½ inches long; its horny part 7½ twelfths, flat above, convex beneath, for 4 twelfths from the tip furnished on each side, not with prickles, but with several series of very slender filaments, which are directed obliquely backwards. The covering of the fleshy part of the tongue is also bristled all over with minute papillæ directed backwards. The horns of the hyoid bone curve round the occiput as in the other species, and then pass along the median line until about 3 twelfths from the base of the bill. The œsophagus is 3 inches 7 twelfths long, passes as usual along the right side of the neck, and has a nearly uniform width of 3½ twelfths. The breadth of the proventriculus is 4 twelfths. The stomach is rather large, of an elliptical form, placed obliquely, its length 9½ twelfths, its greatest breadth 1 inch. The lateral muscles are very large, one of them being 5 twelfths, the other 4 twelfths in thickness; the epithelium thin, tough, longitudinally rugous. The contents of the stomach are remains of maize, some very hard small seeds, and numerous particles of quartz. The intestine is rather short and wide, its length 10½ inches, its width 3½ twelfths. There are no cœca. The cloaca is ovato-oblong, 9 twelfths long, 7½ twelfths in width.

The trachea is 2 inches 8 twelfths in length; its breadth at the upper part 1½ twelfths, somewhat less toward the lower end, a little flattened; the rings 65, with 2 dimidiate, well ossified. The contractor muscles are moderate; the sterno-tracheal slips come off at the distance of only 2 twelfths from the lower extremity; and the inferior laryngeal slips are thus scarcely distinguishable. The cleido-tracheal muscles are inserted about the middle of the furcula. The bronchial half rings are 12, slender, and cartilaginous.

LEWIS' WOODPECKER.

PICUS TORQUATUS, *Wils.*

PLATE CCLXXII.—MALE AND FEMALE.

Here you have figures of the male and female of a beautiful and singularly marked species of Woodpecker, discovered in the course of the memorable journey of CLARKE and LEWIS to the Pacific Ocean, and of which the first figure, being that of an immature male, was presented by WILSON. All that is at present known of its habits is contained in the following notes addressed to me by THOMAS NUTTALL, Esq. and Mr. TOWNSEND. "About the middle of July," says the former of these travellers, "we first met with this fine species in our progress westward, in the central chain of the Rocky Mountains, in the cedar and pine woods of Bear river, on the edge of Upper California. They were already feeding their young, and inhabited the decayed trunks of the pine trees. Afterwards, at the close of August, in the plains sixty miles up the Wahlamet, flocks of from twelve to twenty together were to be seen shifting backwards and forwards in trees near the woods of the river, playing about like so many sportive crows, which the young so much resemble in colour. Now and then they would alight to feed, but remained perfectly silent; they were very shy, the whole flock starting at any near approach. Whether they have any note or call at other seasons I am unable to say. At this time one would scarcely have suspected them of being Woodpeckers, for they perched in dense flocks almost like Starlings, and did not climb the branches, or tap in the least, but merely watched and darted after insects, or devoured berries like Thrushes. We seldom saw this remarkable species in the dense forests of the Columbia, or in any settled part of California."

Mr. TOWNSEND says, "We first found them on Bear river, and afterwards on the Columbia, where they arrive about the first of May. They are at first silent, but after incubation commences, they become very noisy and remarkably pugnacious, beating away all other birds from the vicinity of their nests. They frequently perch crossways upon the smaller branches of trees, as well as against their trunks, climb with the usual ease and activity of other species, and are in the frequent habit of darting out from the tree on which they had stationed themselves, and after having performed a circular gyration in the air, returning immediately to the branch from which

Lewis' Woodpecker.

1. Male. 2. Female.

Drawn from Nature by J.J.Audubon,F.R.S.F.L.S. Lith.ª Printed & Col.ª by J. T. Bowen Phila.ª

they had started; as they near the latter again, they spread their wings horizontally, and sail to their perch like some of the Hawks. Both sexes incubate."

LEWIS' WOODPECKER, *Picus torquatus*, Wils. Amer. Orn., vol. iii. p. 31.
PICUS TORQUATUS, Bonap. Syn., p. 46.
LEWIS' WOODPECKER, Nutt. Man., vol. i. p. 577.
LEWIS' WOODPECKER, *Picus torquatus*, Aud. Orn. Biog., vol. v. p. 176.

Male, 11, wing, $7\frac{2}{12}$.
Rocky Mountains and Columbia river. Abundant. Migratory.
Adult Male.

Bill about the length of the head, nearly straight, strong, compressed, tapering, pointed, very slightly truncate and wedged at the tip. Upper mandible with the dorsal line slightly arched, the ridge convex at the base, very narrow in the rest of its extent, the sides sloping and considerably convex, the lateral angle slight, and near the ridge, the edges sharp, direct, overlapping, the tip almost acuminate. Lower mandible with the angle rather short and wide, the crural outline concave, the dorsal ascending, straight, the ridge narrow, the sides convex, the edges sharp and inflected, the base faintly striated. Nostrils oblong, basal, nearer the ridge, concealed by the feathers.

Head of moderate size, ovate; neck rather short; body full. Feet very short; tarsus very short, feathered anteriorly more than one-third down, in the rest of its extent covered with a few large scutella, compressed, sharp-edged and internally with small scutella behind; toes four, first toe small, fourth rather longer than the third, second and third united at the base; all scutellate above; claws large, much curved, compressed, laterally grooved, very acute.

Plumage full, soft, blended, glossy above, rude beneath. A tuft of reversed stiff feathers on each side at the base of the upper mandible; the feathers in the angle of the lower mandible also stiff. Wings long, the first quill very small, being only an inch and a half in length; the second ten-twelfths shorter than the third, which is a twelfth and a half shorter than the fourth; the fifth longest, being a twelfth and a half longer than the fourth; secondaries broadly rounded. Tail of moderate length, very strong, of ten feathers, all of which are pointed and slit, the shaft terminating abruptly, the lateral feathers ten and a half twelfths shorter than the middle.

Bill dusky, bluish-grey toward the base. Feet bluish-grey. The general colour of the upper parts is black, highly glossed with green; a band across the forehead, the throat, and a broad patch on the side of the head, surrounding the eye, deep carmine or blood-red; beyond this the throat and part of

the sides of the neck black; a band of dull white runs over the hind neck, and is continuous anteriorly with a large patch of reddish-white occupying the fore neck and part of the breast, the rest of the breast and the sides are rose-red, becoming of a deeper tint backwards; the lower wing-coverts, abdomen, and lower tail-coverts black.

Length to end of tail 11 inches; bill along the ridge $1\frac{3}{8}$; wing from flexure $7\frac{1}{12}$; tail $4\frac{1}{4}$; tarsus $1\frac{10}{12}$; hind toe $\frac{3}{12}$, its claw $\frac{3}{12}$; second toe $\frac{7}{12}$, its claw $\frac{5}{12}$; third toe $\frac{8}{12}$, its claw $\frac{6}{12}$; fourth toe $\frac{9}{12}$, its claw $\frac{6}{12}$.

Adult Female.

The female resembles the male, being scarcely distinguishable by her slightly duller tints, and the less extent of the red on the fore part of the head. A young bird obtained in September, has the bill quite pointed, the red on the head scarcely apparent, that on the lower parts intermixed with greyish-white, the fore part of the neck dull grey, and the white ring on the hind neck wanting; many of the feathers there, however, having one or two white spots near the end.

THE GOLDEN-WINGED WOODPECKER.

PICUS AURATUS, *Linn.*

PLATE CCLXXIII.—MALE AND FEMALES.

It is generally agreeable to be in the company of individuals who are naturally animated and pleasant. For this reason, nothing can be more gratifying than the Society of Woodpeckers in the forests. To prove this to you, kind reader, I shall give you a full account of the habits of the Golden-winged Woodpecker.

This species, which is usually called *Pique-bois jaune* by the French settlers in Louisiana, and receives the name of *High-holder*, *Yucker*, and *Flicker* in other parts of the Union, being seldom or never graced with the epithet *Golden-winged*, employed by naturalists, is one of the most lively of our birds, and is found over the whole of the United States.

No sooner has spring called them to the pleasant duty of making love, as it is called, than their voice, which, by the way, is not at all disagreeable to the ear of man, is heard from the tops of high decayed trees, proclaiming with delight the opening of the welcome season. Their note at this period

Golden-winged Woodpecker.

1. Male. 2. Females.

Drawn from Nature by J. J. Audubon, F.R.S.F.L.S.

Lith.d Printed & Col.d by J. T. Bowen, Phila.d

is merriment itself, as it imitates a prolonged and jovial laugh, heard at a considerable distance. Several males pursue a female, reach her, and, to prove the force and truth of their love, bow their heads, spread their tails and move sidewise, backwards and forwards, performing such antics, as might induce any one witnessing them, if not of a most morose temper, to join his laugh to theirs. The female flies to another tree, where she is closely followed by one, two, or even half a dozen of these gay suitors, and where again the same ceremonies are gone through. No fightings occur, no jealousies seem to exist among these beaux, until a marked preference is shewn to some individual, when the rejected proceed in search of another female. In this manner all the Golden-winged Woodpeckers are soon happily mated. Each pair immediately proceed to excavate the trunk of a tree, and finish a hole in it sufficient to contain themselves and their young. They both work with great industry and apparent pleasure. Should the male, for instance, be employed, the female is close to him, and congratulates him on the removal of every chip which his bill sends through the air. While he rests he appears to be speaking to her on the most tender subjects, and when fatigued, is at once assisted by her. In this manner, by the alternate exertions of each, the hole is dug and finished. They caress each other on the branches, climb about and around the tree with apparent delight, rattle with their bill against the tops of the dead branches, chase all their cousins the Red-heads, defy the Purple Grakles to enter their nest, feed plentifully on ants, beetles and larvæ, cackling at intervals, and ere two weeks have elapsed, the female lays either four or six eggs, the whiteness, and transparency of which are, doubtless, the delight of her heart. If to raise a numerous progeny may contribute to happiness, these Woodpeckers are in this respect happy enough, for they have two broods each season ; and as this might induce you to imagine Woodpeckers extremely abundant in our country, I may at once tell you that they are so.

Even in confinement the Golden-winged Woodpecker never suffers its naturally lively spirit to droop. It feeds well, and by way of amusement, will continue to destroy as much furniture in a day as can well be mended by a different kind of workman in two. Therefore, kind reader, do not any longer believe that Woodpeckers are such stupid, forlorn, dejected and unprovided for beings as they have hitherto been represented. In fact, I know not one of the species found in our extensive woods, that does not exhibit quite as much mirth and gaiety as the present bird. They are serviceable birds in many points of view, and therefore are seldom shot at, unless by idlers ; their flesh, moreover, not being very savoury. They have ample range, and wherever they alight, there is to be found the food to which they at all times give decided preference.

The flight of this species is strong and prolonged, being performed in a straighter manner than that of any other of our Woodpeckers. They propel themselves by numerous beats of the wings, with short intervals of sailing, during which they scarcely fall from the horizontal. Their migrations, although partial, as many remain even in the middle districts during the severest winters, are performed under night, as is known by their note, and the whistling of their wings, which are heard from the ground, although by no means so distinctly as when they fly from a tree, or from the earth, when suddenly alarmed. When passing from one tree to another on wing, they also fly in a straight line, until within a few yards of the spot on which they intend to alight, when they suddenly raise themselves a few feet, and fasten themselves to the bark of the trunk by their claws and tail. If they intend to settle on a branch, which they as frequently do, they do not previously rise; but in either case, no sooner has the bird alighted, if it be not pursued or have suspicions of any object about it, than it immediately nods its head, and utters its well-known note, "*Flicker.*" It easily moves sidewise on a small branch, keeping itself as erect as other birds usually do; but with equal ease does it climb by leaps along the trunks of trees or their branches, descend, and move sidewise or spirally, keeping at all times its head upwards, and its tail pressed against the bark as a support.

On the ground, where it frequently alights, it hops with great ease. This, however, it does merely to pick up a beetle, a caterpillar, a grain of corn dropt by a squirrel from the ear in the fields, or to enable it to examine the dead roots of trees, or the side of a prostrate log, from which it procures ants and other small insects. It is also fond of various fruits and berries. Apples, grapes, persimons and dogwood berries seem quite agreeable to it, and it does not neglect the young corn of the farmer's field. Even poke-berries or huckle-berries answer its purpose at times, and during winter it is a frequenter of the corn-cribs.

In this species, as in a few others, there is a singular arrangement in the colouring of the feathers of the upper part of the head, which I conceive it necessary for me to state, that it may enable persons better qualified than myself to decide as to the reasons of such arrangement. The young of this species frequently have the whole upper part of the head tinged with red, which at the approach of winter disappears, when merely a circular line of that colour is to be observed on the hind part, becoming of a rich silky vermilion tint. The Hairy, Downy and Red-cockaded Woodpeckers are subject to the same extraordinary changes, which, as far as I know, never reappear at any future period of their lives. I was at first of opinion that this change appeared only on the head of the male birds, but on dissection I found it equally affecting both sexes. I am induced to believe, that, in consequence of this, many young Woodpeckers of different species have been

described and figured as forming distinct species themselves. I have shot dozens of young Woodpeckers in this peculiar state of plumage, which, on being shewn to other persons, were thought by them to be of different species from what the birds actually were. This occurrence is the more worthy of notice, as it is exhibited on all the species of this genus on the heads of which, when in full plumage, a very narrow line exists.

Racoons and Black-snakes are dangerous enemies to this bird. The former frequently put one of their fore legs into the hole where it has nestled or retired to rest, and if the hole be not too deep, draw out the eggs and suck them, and frequently by the same means secure the bird itself. The Black-snake contents itself with the eggs or young. Several species of Hawks attack them on the wing, and as the Woodpeckers generally escape by making for a hole in the nearest tree, it is pleasing to see the disappointment of the Hawk, when, as it has just been on the point of seizing the terrified bird, the latter dives, as it were, into the hole. Should the Woodpecker not know of a hole near enough to afford it security, it alights on a trunk, and moves round it with such celerity as frequently to enable it to elude its pursuer.

Their flesh is esteemed good by many of the sportsmen of the Middle Districts, and is frequently eaten. Some are now and then exposed in the markets of New York and Philadelphia; but I look upon the flesh as very disagreeable, it having a strong flavour of ants.

The neck of this species is larger than that of any other with which I am acquainted, and consequently the skin of this bird is more easily pulled over the head, which it is difficult to do in the other species, on account of the slenderness of their neck, and the great size of the head.

This species visits the Fur Countries in summer, advancing as far north as Great Bear Lake, and, according to Dr. RICHARDSON, resorting in the greatest numbers to the plains of the Saskatchewan, where it frequents open downs, and feeds on larvæ. Mr. TOWNSEND has traced it high on the upper Missouri, but saw none near the Columbia, where it is represented by the Red-shafted Woodpecker, which is there as abundant as the present species is in our Eastern Districts. I have met with it from Texas to the northern extremity of Nova Scotia, but saw none in Labrador. The eggs measure an inch and a twelfth in length, by nearly seven-eighths in breadth. Mr. T. MACCULLOCH has favoured me with the following notice respecting this species.

"While rambling through the woods one afternoon with my brothers, I observed a considerable quantity of chips, which seemed, from the freshness of their colour, to have been but recently detached from the tall decayed stump, at the foot of which they were laid. A glance at a round hole near the top of the stump was sufficient to apprize us of their origin, and a few

smart raps upon the trunk brought a Golden-winged Woodpecker to the aperture, to ascertain the cause of the disturbance below. Having eyed us for a moment, he jerked himself out, and flew to the top of a neighbouring tree, where, uttering a few shrill notes, he was immediately joined by his mate, and both seemed anxiously to watch all our movements while we remained near the cradle of their future progeny. By us the possession of one of these beautiful birds had long been ardently desired, and we determined not to permit the present opportunity to pass unimproved. The situation of the nest was therefore carefully marked, and we resolved to return when the young birds should be fully fledged, and secure one at least as our lawful prize. During the interval the nest was often visited, and many plans were formed to effect our purpose, but when the period which we supposed necessary had expired, we discovered with no little mortification that the stump was too much decayed to be climbed with safety, and too insecure to admit of anything being applied to facilitate the ascent. To overturn the nest was the only way then by which we could obtain the object of our wishes. To effect this all our strength was exerted, so that we soon had the satisfaction of seeing the stump yield, and eventually give way with a heavy crash, by which it was broken into many pieces. Eager to secure our prize, we hastened to the spot, but conceive our disappointment when, instead of the full-fledged birds which we expected to obtain, a large number of naked objects, apparently just out of the shell, some of them scarcely half the size of others, and all with their eyes yet unopened, lay scattered upon the ground. This was a result which we had never anticipated, and disappointment quickly yielded to strong feelings of compunction, as we surveyed the poor sightless creatures writhing their necks and quivering under the severity of the shock. To repair the mischief, if possible, the fragments of the nest were speedily gathered and neatly joined, and having collected the brood for the purpose of replacing it, we were astonished to find that the nest had contained the almost incredible number of *eighteen young birds*, besides three eggs, which still remained unbroken, notwithstanding the violence of the fall. For this singular instance of fecundity I am wholly unable to account, unless by the supposition that, from the nest being in the immediate vicinity of a public road, one of the birds had been shot after the usual deposit of eggs had been made. The survivor having procured another mate, an addition was made to the number of eggs, and most probably from the same cause a third, ere the work of incubation commenced. The vigour of one of the parents being impaired may perhaps explain the diversity of size, while the eggs which remained were probably the first deposited, but in which the vital principle had become extinct ere the last was laid. Perhaps it may be interesting to mention that our efforts

to repair the injury were not attended by the result that we desired. Upon a subsequent visit the whole brood was found cold and dead; and if the parent birds had ever re-entered their prostrate nest, it was merely to witness the devastation we had wrought, and then to abandon it for ever."

Gold-winged Woodpecker, *Picus auratus*, Wils. Amer. Orn., vol. ii. p. 45.

Picus auratus, Bonap. Syn., p. 44.

Colaptes auratus, *Golden-shafted Woodpecker*, Swains. and Rich. F. Bor. Amer., vol. ii. p. 314.

Flicker or Golden-winged Woodpecker, Nutt. Man., vol. i. p. 561.

Golden-winged Woodpecker, *Picus auratus*, Aud. Orn. Biog., vol. i. p. 191; vol. v. p. 540.

Male, 12½, 16.

Breeds from Texas to Nova Scotia, and the Fur Countries. Generally distributed in the United States. Eastern bases of Rocky Mountains. Extremely common. Resident in the Southern States.

Adult Male.

Bill slightly arched, strong, nearly as long as the head, compressed at the tip, which is a little abrupt; upper mandible convex on the sides, with acute, overlapping edges; lower mandible with acute, inflected edges, the dorsal outline nearly straight, a little convex towards the end. Nostrils basal, lateral, oval, partly covered by recumbent feathers. Head of ordinary size. Neck shortish. Body ovate. Feet short, rather robust; tarsus scutellate before, compressed; two toes before, and two behind, scutellate above; claws compressed, arched, acute.

Plumage rather compact and imbricated, blended on the head and neck. Wings longish, the third and fourth quills longest, the second much shorter, the first very small. Tail of ordinary length, rounded, consisting of ten broad feathers, worn to an elongated tip by being rubbed against the bark of trees.

Bill brown above and at the tip, light blue beneath. Iris light brown. Feet greyish-blue. Upper part of the head and hind neck light purplish-grey; a transverse band of scarlet on the lower part of the occiput. Upper parts generally light greenish-brown, spotted with black; the lower back white, the tail-coverts of the same colour, spotted with black. Primaries brownish-black, their shafts, as are those of all the large feathers, orange. Tail brownish-black. Sides of the head and fore neck light brownish-red, tinged with grey. A black streak along each side of the throat, and a lunated patch of the same across the fore part of the breast. The rest of the breast reddish-white, spotted with black, as are the lighter coloured abdomen and under tail-coverts. Under surface of the wings and tail of a fine rich yellow.

Length 12½ inches, extent of wings 16; bill along the ridge 1⅛, along the gap 1⅝; tarsus 1⅛, middle toe 1¼.

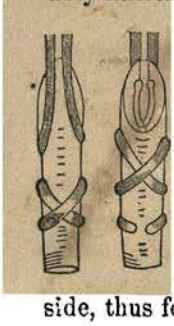
Adult Female.

The female differs chiefly in wanting the black streaks on the throat, in having the lunulated spot on the breast smaller, and in being somewhat duller in the tints of the plumage generally.

Dimensions nearly the same.

An adult male preserved in spirits has the interior of the mouth as in the other species, its width 5½ twelfths; the posterior aperture of the nares oblongo-linear, 6 twelfths in length. The tongue is 1 inch 5 twelfths long, 1½ twelfths in breadth at the base, gradually narrowed toward the end, with a small horny rather blunt tip, on which are two series of small reversed pointed papillæ. The horns of the hyoid bone are recurved in the usual manner, and extend to the right nasal membrane, to which their sheath is attached. The other apparatus connected with the tongue is the same as in the Ivory-billed Woodpecker. The pyramidal or salivary glands are very large, extending half an inch beyond the articulation of the lower jaw. The œsophagus is 4 inches long, of moderate width. The proventriculus is very much enlarged, as in the other species, its greatest width being 8 twelfths. The stomach is a muscular gizzard of moderate size, its right lateral muscle twice as large as the left, the tendons very large; the epithelium strong, longitudinally rugous, and reddish-brown. In the stomach are grains of maize, seeds of grasses, and insects. The proventricular glands are very small, and form a belt 9 twelfths in breadth at the right side, but narrower toward the left. The intestine is 15 inches long, from 3 twelfths to 2½ twelfths in width. There are no cœca. The cloaca is large and elliptical.

The trachea is 2 inches 9 twelfths long, 1½ twelfths in breadth, considerably flattened, its rings, which are well ossified, 90 in number, with 2 additional dimidiate rings. The muscles are as in the other species; but the glosso-laryngeal differ very considerably in their insertion, as is represented by the accompanying figures, in which they are seen before and behind. They come down parallel to each other, as far as the commencement of the thyroid bone, then diverge, each of them passing toward its own side, winding behind the trachea, crossing it at the back part, reappearing in front at the opposite side, and crossing obliquely to the other side, thus forming a figure of eight, and finally inserted at its back part at the distance of 9 twelfths from the tip of the thyroid bone. The bronchi are of moderate length, narrow, of 15 half rings.



There is a very curious gradation in the degree of elongation of the horns of the hyoid bone in the different American Woodpeckers, some of which

consequently have the power of thrusting out their tongue to a much greater extent than others. Thus:

In *Picus varius*, the tips of the horns of the hyoid bone reach only to the upper edge of the cerebellum, or the middle of the occipital region.

In *Picus pubescens*, they do not proceed farther forward than opposite to the centre of the eye.

In *Picus principalis*, they reach to a little before the anterior edge of the orbit, or the distance of ½ inch from the right nostril.

In *Picus pileatus*, they extend to half-way between the anterior edge of the orbit and the nostril.

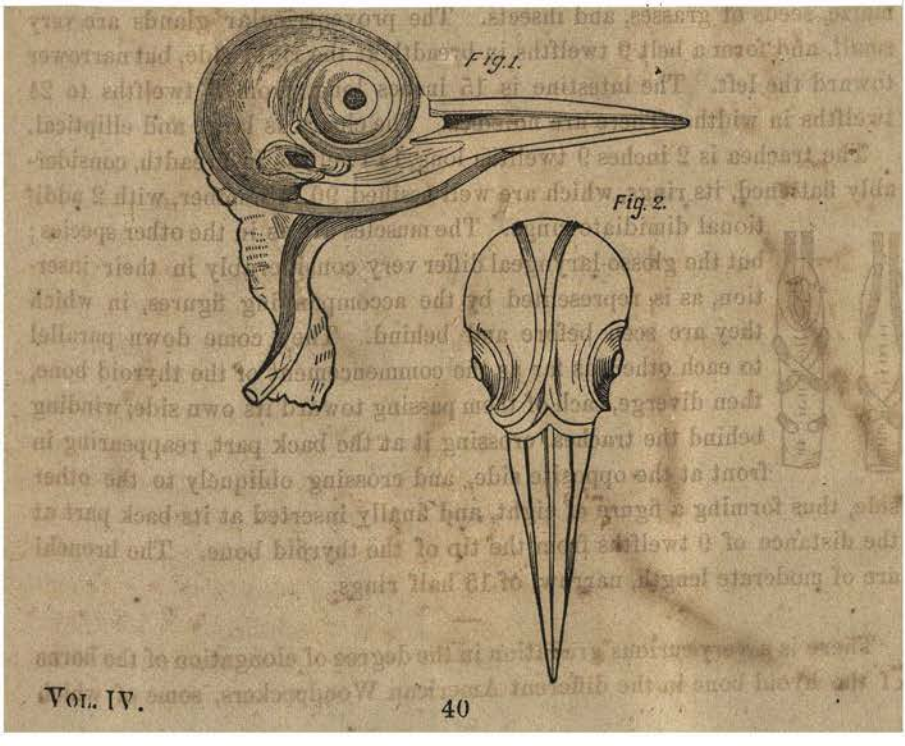
In *Picus erythrocephalus*, they reach to 3 twelfths of an inch from the base of the bill.

In *Picus tridactylus*, they reach the base of the ridge of the upper mandible.

In *Picus auratus*, they attain the base of the right nasal membrane.

In *Picus canadensis*, they curve round the right orbit to opposite the middle of the eye beneath.

Lastly, in *Picus villosus*, they receive the maximum of their development, and, as represented in the accompanying figures, curve round the right orbit, so as to reach the level of the posterior angle of the eye. Fig. 1 is a lateral view of the parts, showing the hyoid bones curving round the eye. Fig. 2 shows these bones as viewed from above.



RED-SHAFTED WOODPECKER.

PICUS MEXICANUS, *Swains.*

PLATE CCLXXIV.—MALE AND FEMALE.

This beautiful species was first described by Mr. SWAINSON from Mexican specimens. The extent of its distribution is as yet imperfectly known, especially toward the north. My friend Mr. NUTTALL states, that "among the narrow belt of forest which borders Lorimie's Fork of the Platte, we met with the Mexican Colaptes, and never scarcely lost sight of it to the shores of the Pacific. Its manners in all respects are so entirely similar to those of the common species, that the same description applies to both. It is, however, always a much shyer bird, and frequents the ground less. In the breeding season it utters the same echoing note of *whittoe, whittoe, whittoe;* the males at the same time dodging after, and pursuing each other in jealousy and anger. They also burrow into the oak or pine trees, and lay white eggs, after the manner of the whole family. How far they proceed to the north I am unable to say." Mr. TOWNSEND informs me that it is known to the Chinook Indians by the name of *A-Koptil-Kow*, and in regard to habits is similar to *Picus auratus*, the male equally partaking of the task of incubation.

I have represented the male and the female.

COLAPTES MEXICANUS, Swains. Synop. of Birds of Mex. Phil. Mag. N. 84.

COLAPTES MEXICANUS, *Red-shafted Woodpecker*, Swains. and Rich. F. Bor. Amer., vol. ii. p. 315.

RED-SHAFTED WOODPECKER, Nutt. Man., vol. ii. p. 603.

RED-SHAFTED WOODPECKER, *Picus Mexicanus*, Aud. Orn. Biog., vol. v. p. 174.

Male, 13½, wing, 6$\frac{1}{2}$. Female, 13.

Rocky Mountains, Columbia river, and northward to the Saskatchewan. Abundant. Migratory.

Adult Male.

Bill slightly arched, strong, nearly as long as the head, angular, compressed at the tip, which is scarcely truncate or cuneate. Upper mandible with the dorsal line somewhat arched, the ridge narrow, the sides sloping, the lateral angle quite close to the ridge, the edges sharp and overlapping; lower mandible with the angle long and rather narrow, the crural outline a

Red-shafted Woodpecker.

1. Male 2 Female.

Drawn from Nature by J.J.Audubon, F.R.S.F.L.S. Lith.d Printed & Col.d by J. T. Bowen, Phila.a

little concave, the dorsal straight, the ridge narrow, the sides convex, the edges inflected, the tip acute. Nostrils basal, oblong, about half-way between the ridge and the margin, and concealed by the feathers.

Head of moderate size, ovate; neck rather short; body rather full. Feet very short, tarsus short, compressed, anteriorly feathered one-third down, covered with six large scutella in the rest of its extent, thin-edged, with an internal series of small scutella behind; toes four; first small, third and fourth about equal, second and third united at the base; claws large, curved, compressed, laterally grooved, very acute.

Plumage very soft, full, blended. Feathers at the base of the upper mandible stiffish and directed forwards. Wings of moderate length, the fifth quill longest, the fourth one-twelfth of an inch shorter, the third three-twelfths shorter than the fourth, and exceeding the second by one inch, the first only one inch and nine-twelfths long. Tail of moderate length, cuneate, of twelve feathers, all pointed except the outer, which is only an inch and three-quarters in length, the next one inch shorter than the middle.

Bill dusky above and at the tip, light greyish-blue beneath. Iris light brown. Feet greyish-blue. Upper part of the head and hind neck light purplish-grey; forehead and a band over the eye dull red; the sides and fore part of the neck ash-grey, with an oblong patch of bright carmine from the base of the lower mandible. The upper parts generally are light greyish-brown, transversely spotted with black; the hind part of the back white; the upper tail-coverts black, barred with white. The shafts of the quills and their coverts are orange-red; the smaller coverts coloured like the back; primaries and their coverts brownish-black, most of them externally spotted with greyish-brown; secondaries brownish-black, spotted on both margins with greyish-brown. Tail-feathers brownish-black, the two lateral on each side with several light brown spots along the margin, the rest faintly edged with yellowish-white, the shafts of all toward the base, and the greater part of their lower surface orange-red, tinged with vermilion, as is the lower surface of the wings. On the fore part of the breast is a crescentic patch of black; the rest of the lower parts are reddish-white, with numerous round black spots.

Length to end of tail 13½ inches; bill along the ridge 1½, along the edge of lower mandible $1\frac{9}{12}$; wing from flexure $6\frac{10}{12}$; tail $4\frac{10}{12}$; tarsus $1\frac{2}{12}$; first toe $\frac{4}{12}$, its claw $\frac{4}{12}$; second toe $\frac{8}{12}$, its claw $\frac{6}{12}$; third toe $\frac{10}{12}$, its claw $\frac{7}{12}$; fourth toe $\frac{9}{12}$, its claw $\frac{7}{12}$.

Adult Female.

The female resembles the male; but has the tints somewhat duller, and wants the red patch on the cheeks, that part being merely tinged with red. An individual, marked by Mr. TOWNSEND "Female, Columbia river, April

1, 1836," is similar to the female as above described, but has the lower surface of the wings and tail, with the shafts, of a much paler tint, approaching to dull yellow, which induces me to think that this species does not attain its perfect colouring until at least the second year.

Length to end of tail 13 inches, bill along the ridge 1 1/2.

FAMILY XXVII.—CUCULINÆ. CUCKOOS.

Bill long or of moderate length, broader than high at the base, compressed toward the end, straight or somewhat arched; upper mandible with the dorsal line convex or arched, the ridge indistinct, the sides convex, the edges arched, sharp, without notch, the tip decurved; lower mandible with the angle rather short, the dorsal line straight or decurved, the ridge thin, the sides erect or convex, the tip slightly decurved, acute. Nostrils basal, oblong, generally marginate. Head of moderate size; neck of ordinary length; body rather slender. Feet of moderate length; tarsus with broad scutella; toes long, slender, flat beneath, outer directed outwards or backwards. Claws long or of moderate length, arched, compressed, acute. Plumage blended; wings generally long, with the first quill short, the third and fourth longest. Tail long, of ten feathers; upper mandible very narrow beneath, with three longitudinal ridges; tongue slender, emarginate, and papillate at the base, the tip horny, thin, lacerated, and slit; œsophagus rather wide, without dilatation; stomach large, round, with the muscular coat very thin, the epithelium soft, rugous; intestine of moderate length and width; cœca long, oblong, narrowed at the base. Trachea simple, with a single very slender pair of inferior laryngeal muscles.

Yellow-billed Cuckoo.

1. Male. 2. Female.

Papaw Tree

Drawn from Nature by J.J.Audubon.F.R.S.F.L.S.

Lith.d Printed & Col.d by J. T. Bowen. Philad.a

Genus I.—COCCYZUS, *Vieill.* AMERICAN CUCKOO.

Bill of moderate length, rather slender, somewhat arched, much compressed, acute; upper mandible with the dorsal line arched, the ridge rounded, the sides erect toward the end, the edges thin, direct, the tip narrow, decurved; lower mandible with the angle of moderate length, rather wider, the dorsal line decurved toward the end, the sides nearly erect, the edges decurved, the tip narrow; the nostrils small, oblong, operculate. Eyelids bare, except at the margin. Head rather small; neck of moderate length; body slender. Feet rather short; tarsus compressed, rather stout, with seven very broad scutella; toes slender, compressed, anterior united at the base, first small. Claws moderate, arched, compressed, laterally grooved, acute. Plumage soft and blended, somewhat compact on the back. Wings of moderate length, with the first quill very short, the third and fourth longest. Tail very long, cuneate or graduated.

THE YELLOW-BILLED CUCKOO.

Coccyzus americanus, *Linn.*

PLATE CCLXXV.—Male and Female.

Were I inclined, like many persons who write on Natural History, to criticise the figures given by other students, I should find enough to be censured; but as my object is simply to communicate the result of studies to which I have devoted the greater part of my life, I shall content myself with merely recommending to those intent on the advancement of that most interesting science, to bestow a little more care on their representations of the bills, legs and feet of the species which they bring into notice, and let it be seen that they indeed borrow from nature.

From Nature!—How often are these words used, when at a glance he who

has seen the perfect and beautiful forms of birds, quadrupeds or other objects, as they have come from the hand of Nature, discovers that the representation is not that of *living* Nature! But I am deviating from the track which I wish to follow, my desire being simply to give you an opportunity, good reader, of judging for yourself as to the truth of my delineations, and to present you with the results of my observations made in those very woods where the subjects have been found and depicted.

The flight of the bird now before you is rapid, silent, and horizontal, as it moves from one tree to another, or across a field or river, and is generally continued amongst the branches of the trees in our woods. When making its way among the branches, it occasionally inclines the body to either side, so as alternately to shew its whole upper or under parts. During its southward migration, it flies high in the air, and in such loose flocks that the birds might seem to follow each other, instead of their keeping company together. On the other hand, early in March, the greater number enter our southern boundaries singly, the males arriving first, and the females a few weeks after. They do not fly in a continued line, but in a broad front, as, while travelling with great rapidity in a steamboat, so as to include a range of a hundred miles in one day, I have observed this Cuckoo crossing the Mississippi at many different points on the same day. At this season, they resort to the deepest shades of the forests, and intimate their presence by the frequent repetition of their dull and unmusical notes, which are not unlike those of the young bull-frog. These notes may be represented by the word *cow, cow*, repeated eight or ten times with increasing rapidity. In fact, from the resemblance of its notes to that word, this Cuckoo is named *Cow-bird* in nearly every part of the Union. The Dutch farmers of Pennsylvania know it better by the name of *Rain Crow*, and in Louisiana the French settlers call it *Coucou*.

It robs smaller birds of their eggs, which it sucks on all occasions, and is cowardly and shy, without being vigilant. On this latter account, it often falls a prey to several species of Hawks, of which the Pigeon Hawk (*Falco columbarius*) may be considered as its most dangerous enemy. It prefers the Southern States for its residence; and when very mild winters occur in Louisiana, some individuals remain there, not finding it necessary to go farther south.

This bird is not abundant anywhere, and yet is found very far north. I have met with it in all the low grounds and damp places in Massachusetts, along the line of Upper Canada, pretty high on the Mississippi and Arkansas, and in every state between these boundary lines. Its appearance in the State of New York seldom takes place before the beginning of May, and at Green Bay not until the middle of that month. A pair here and there seem

to appropriate certain tracts to themselves, where they rear their young in the midst of peace and plenty. They feed on insects, such as caterpillars and butterflies, as well as on berries of many kinds, evincing a special predilection for the mulberry. In autumn they eat many grapes, and I have seen them supporting themselves by a momentary motion of their wings opposite a bunch, as if selecting the ripest, when they would seize it and return to a branch, repeating their visits in this manner until satiated. They now and then descend to the ground, to pick up a wood-snail or a beetle. They are extremely awkward at walking, and move in an ambling manner, or leap along sidewise, for which the shortness of their legs is ample excuse. They are seldom seen perched conspicuously on a twig, but on the contrary are generally to be found amongst the thickest boughs and foliage, where they emit their notes until late in autumn, at which time they discontinue them.

The nest is simple, flat, composed of a few dry sticks and grass, formed much like that of the Common Dove, and, like it, fastened to an horizontal branch, often within the reach of man, who seldom disturbs it. It makes no particular selection as to situation or the nature of the tree, but settles anywhere indiscriminately. The eggs are four or five, of a rather elongated oval form, and bright green colour. They rear only one brood in a season, unless the eggs are removed or destroyed. The young are principally fed with insects during the first weeks. Towards autumn they become very fat, and are fit for being eaten, although few persons, excepting the Creoles of Louisiana, shoot them for the table.

Whilst at Charleston in South Carolina, in the early part of June, 1837, I was invited by JAMES SMITH RHETT, Esq., residing in the suburbs of that city, to visit his grounds for the purpose of viewing the nest of this bird. This I did in company with my friend Dr. SAMUEL WILSON, and we found ourselves highly gratified, as we were enabled to make the following observations:—

A nest, which was placed near the centre of a tree of moderate size, was reached by a son of the gentleman on whose ground we were. One of the old birds, which was sitting upon it, left its situation only when within a few inches of the climber's hand, and silently glided off to another tree close by. Two young Cuckoos nearly able to fly scrambled off from their tenement among the branches of the tree, and were caught by us after awhile. The nest was taken, and carefully handed to me. It still contained three young Cuckoos, all of different sizes, the smallest apparently just hatched, the next in size probably several days old, while the largest, covered with pin-feathers, would have been able to leave the nest in about a week. There were also in the nest two eggs, one containing a chick, the other fresh or lately laid. The two young birds which escaped from the nest, clung so

firmly to the branches by their feet, that our attempts to dislodge them were of no avail, and we were obliged to reach them with the hand. On now looking at all these young birds, our surprise was indeed great, as no two of them were of the same size, which clearly showed that they had been hatched at different periods, and I should suppose the largest to have been fully three weeks older than any of the rest. Mr. RHETT assured us that he had observed the same in another nest placed in a tree within a few paces of his house, and which he also shewed to us. He stated that *eleven* young Cuckoos had been successively hatched and reared in it, by the same pair of old birds, in one season, and that young birds and eggs were to be seen in it at the same time for many weeks in succession.

On thinking since of this strange fact, I have felt most anxious to discover how many eggs the Cuckoo of Europe drops in one season. If it, as I suspect, produces, as our bird does, not less than eight or ten, or what may be called the amount of *two* broods, in a season, this circumstance would connect the two species in a still more intimate manner than theoretical writers have supposed them to be allied. And if our Cow-pen bird also drops eight or ten eggs in a season, which she probably does, that number might be considered as the amount of two broods, which the Red-winged Starling usually produces.

I requested Mr. RHETT to write me a letter on the subject, which he did, but, to my great mortification, I am unable to find it. Having mentioned the above facts to my friend Dr. T. M. BREWER, and desired him to pay particular attention to these birds while breeding, he has sent me the following note.

"The fact which you intimated to me last July I have myself observed. The female evidently commences incubation immediately after laying her first egg. Thus I have found in the nest of both species of our Cuckoos one egg quite fresh, while in another the chick will be just bursting the shell; and again I have found an egg just about to be hatched while others are already so, and some of the young even about to fly. These species are not uncommon in Massachusetts, where both breed; and both are much more numerous some years than others."

I found the Yellow-billed Cuckoo plentiful and breeding in the Texas; and it is met with, on the other hand, in Nova Scotia, and even in Labrador, where I saw a few. It has been observed on the Columbia river by Mr. TOWNSEND. No mention is made of it in the Fauna Boreali-Americana. Many spend the winter in the most southern portions of the Floridas.

The eggs measure one inch three and a half eighths in length, seven and a quarter eighths in breadth, and are, as already described, of a uniform greenish-blue colour. They are longer, as well as lighter in their general

colour, than those of the Black-billed Cuckoo. I must not omit to say, that during calm and pleasant nights, the well-known notes of this bird frequently fall on the ear of him who may be reposing in his lonely camp, or on that of him who rests on his downy couch. I have often enjoyed this monotonous music in the Floridas, during the winter which I spent there.

The branch, among the foliage of which you see the male and female winging their way, is one of the *papaw*, a tree of small size, seldom more than from twenty to thirty feet in height, with a diameter of from three to seven inches. It is found growing in all rich grounds, to which it is peculiar, from the southern line of our States to central Pennsylvania, seldom farther eastward, here and there only along the alluvial shores of the Ohio and Mississippi. In all other places of like nature you may meet with groves of *papaw* trees, covering an acre or more of ground. The fruit, which is represented in the plate, consists of a pulpy and insipid substance, within which are found several large, hard, and glossy seeds. The rind is extremely thin. The wood is light, soft, brittle, and almost useless. The bark, which is smooth, may be torn off from the foot of the tree to the very top, and is frequently used for making ropes, after it has been steeped in water sufficiently to detach the outer part, when the fibres are obtained, which, when twisted, are found to be nearly as tough and durable as hemp. The numerous islands of the Ohio and all the other western rivers are generally well stocked with this tree.

YELLOW-BILLED CUCKOO, *Cuculus carolinensis*, Wils. Amer. Orn., vol. iv. p. 13.
COCCYZUS AMERICANUS, Bonap. Syn., p. 42.
YELLOW-BILLED CUCKOO, *Coccyzus americanus*, Nutt. Man., vol. i. p. 551.
YELLOW-BILLED CUCKOO, *Coccyzus americanus*, Aud. Orn. Biog., vol. i. p. 18; vol. v. p. 520.

Male, 12½, 16. Female, 11¾, 15½.

Breeds from Texas to Nova Scotia, and throughout the interior to the eastern bar of the Rocky Mountains. Common. Many spend the winter in the Floridas.

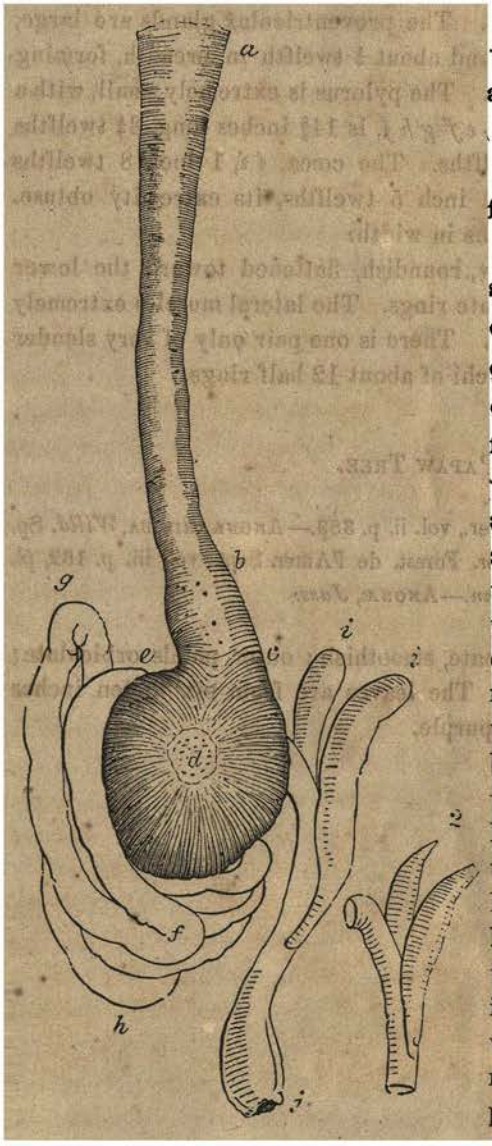
Adult Male.

Bill as long as the head, compressed, slightly arched, acute, scarcely more robust than in many Sylviæ; upper mandible carinated above, its margins acute and entire; lower mandible carinated beneath, acute. Nostrils basal, lateral, linear-elliptical, half closed by a membrane. Feet short; tarsus scutellate before and behind; toes two before, separated; two behind, one of which is versatile, the sole flat; claws slender, compressed, arched.

Plumage blended, slightly glossed. Wings long, the first quill short, the

third longest, the primaries tapering. Tail long, graduated, of ten feathers, which are rather narrow and rounded.

Upper mandible brownish-black, yellow on the margin towards the base; under mandible yellow. Iris hazel. Feet greyish-blue. The general colour of the upper parts, including the wing-coverts and two middle tail-feathers, is light greenish-brown, deeper anteriorly. Primary quills with the inner webs brownish-orange. Tail-feathers, excepting the two middle ones, black, the next two entirely black, the rest broadly tipped with white, the outermost white on the outer web. The under parts are greyish-white.



Length 12½ inches, extent of wings 16; bill along the ridge 1, along the gap 1⅛.

Adult Female.

The female differs very little from the male in colouring.

In a female of this species preserved in spirits, the length to the end of the tail is 11⅜ inches; to end of wings 9, to end of claws 8¼; extent of wings 15½; wing from flexure $5\frac{8}{12}$; tail $5\frac{7}{12}$.

The roof of the mouth is flat, and covered with a transparent skin, as in Goatsuckers and Owls; the upper mandible very narrow towards the end, and slightly concave, with three longitudinal ridges; the posterior aperture of the nares oblong behind, linear before, only 4 twelfths long; the width of the mouth 7 twelfths; the lower mandible channelled. The tongue is very slender, 10½ twelfths long, emarginate at the base, with long slender papillæ, its breadth at the middle only 1¼ twelfths, horny in the greater part of its length, with the edges lacerated, the tip rather acute and slight. Œsophagus, *a b c*, 3 inches 7 twelfths

long, at its commencement 6 twelfths in width, gradually diminishing to 4 twelfths; the proventriculus, *b c*, 5 twelfths in breadth. The stomach, *c d e*, very large, broadly elliptical, compressed, 1 inch 2 twelfths long, 1 inch in breadth, and when distended seeming to occupy almost the whole cavity of the abdomen; in which respect, as well as in its structure, it is precisely similar to *Cuculus canorus;* its walls are extremely thin, its muscular coat being formed of a single series of small fasciculi. It is turgid with the remains of insects, among which are a great quantity of hairs, some of them adhering to, or thrust into the inner coat, which is soft, destitute of rugæ, and of a bright red colour. The proventricular glands are large, cylindrical, 1¼ twelfths in length and about ¼ twelfth in breadth, forming a belt about 9 twelfths in breadth. The pylorus is extremely small, with a thickened margin. The intestine, *e f g h j*, is 14¾ inches long, 3¼ twelfths in width, diminishing to 2½ twelfths. The cœca, *i i*, 1 inch 8 twelfths long, 3½ twelfths in width for 1 inch 5 twelfths, its extremity obtuse. Cloaca, *j*, oblong, about 4½ twelfths in width.

Trachea 2½ inches long, narrow, roundish, flattened toward the lower part, of 60 rings, with five dimidiate rings. The lateral muscles extremely slender, as are the sterno-tracheal. There is one pair only of very slender inferior laryngeal muscles. Bronchi of about 12 half rings.

The Papaw Tree.

Porcelia triloba, *Pursh*, Flor. Amer., vol. ii. p. 383.—Anona triloba, *Willd.* Sp. Pl., vol. ii. p. 1267. *Mich.*, Arbr. Forest. de l'Amer. Sept., vol. iii. p. 162, pl. 9.—Polyandria Polygynia, *Linn.*—Anonæ, *Juss.*

Leaves obovato-cuneate, acuminate, smoothish; outer petals orbiculate; fruits oblong, large, and fleshy. The leaves are from six to ten inches long; the flowers of a rich dark purple.

THE BLACK-BILLED CUCKOO.

COCCYZUS ERYTHROPHTHALMUS, *Wils.*

PLATE CCLXXVI.—MALE AND FEMALE.

I have not met with this species in the State of Louisiana more than half a dozen times; nor indeed have I seen it at all in the Western States, excepting that of Ohio, where I have occasionally observed an individual, apparently out of its usual range. Some of these individuals were probably bound for the Upper Lakes. The woody sides of the sea are the places to which this species usually resorts. It passes from the south early in March, and continues its route through Florida, Georgia, and all the other States verging on the Atlantic, beginning to rest and to breed in North Carolina, and extending its travels to the Province of Maine.

The flight of this species is swifter than that of its near relative, the Yellow-billed Cuckoo, for which bird it is easily mistaken by ordinary observers. It does not so much frequent the interior of woods, but appears along their margins, on the edges of creeks and damp places. But the most remarkable distinction between this species and the Yellow-billed Cuckoo, is, that the former, instead of feeding principally on insects and fruits, procures fresh-water shellfish and aquatic larvæ for its sustenance. It is, therefore, more frequently seen on the ground, near the edges of the water, or descending along the drooping branches of trees to their extremities, to seize the insects in the water beneath them.

The nest of this bird is built in places similar to those chosen by the other species, and is formed of the same materials, arranged with quite as little art. The females lay from four to six eggs, of a greenish-blue, nearly equal at both ends, but rather smaller than those of the Yellow-billed Cuckoo. It retires southward fully a fortnight before the latter.

The observations respecting the curious manners of our Yellow-billed Cuckoo, the subject of the last article, might be repeated here, for the present species is similar in this respect, as has been ascertained by Dr. T. M. BREWER of Boston. Its eggs are not only smaller than those of the other species, but also rounder, and of a much deeper tint of green; they measure one inch and half an eighth in length, and seven-eighths in breadth.

The Black-billed Cuckoo is rare in all the Southern States, my friend Dr. BACHMAN never having seen it in the maritime districts of South Carolina,

Black-billed Cuckoo.

1. Male. 2. Female.

Magnolia grandiflora

Drawn from Nature by J.J.Audubon, F.R.S.F.L.S.

Lith.d Printed & Col.d by J. T. Bowen, Phila.a

nor myself in any part of Georgia, although WILSON, who first distinguished this species, says that Mr. ABBOT of Georgia found it there, and was well aware of its being distinct from the yellow-billed species. I met with it in Texas, arriving from the south; and found some individuals in winter, in the central parts of the southern districts of Florida. On the other hand it is not uncommon in Nova Scotia and Newfoundland, and we saw a few in Labrador, amid the clumps of low trees a few miles from the shore of the Gulf in secluded and pleasant valleys. It does not appear that it reaches the Fur Countries, or the Rocky Mountains, as no mention is made of it by Dr. RICHARDSON or Mr. TOWNSEND.

It being so scarce a species in Louisiana, I have honoured it by placing a pair on a branch of *magnolia* in bloom, although the birds represented were not shot on one of these trees, but in a swamp near some, where the birds were in pursuit of such flies as you see figured, probably to amuse themselves.

BLACK-BILLED CUCKOO, *Cuculus erythrophthalmus*, Wils. Amer. Orn., vol. iv. p. 15.
COCCYZUS ERYTHROPHTHALMUS, Bonap. Syn., p. 42.
ST. DOMINGO CUCKOO, *Coccyzus dominicus*, Nutt. Man., vol. i. p. 556.
BLACK-BILLED CUCKOO, *Coccyzus erythrophthalmus*, Aud. Orn. Biog., vol. i. p. 170; vol. v. p. 523.

Male, 11½, 15.

From Texas to Nova Scotia, and in the interior to Kentucky. Rather common. Migratory

Adult Male.

Bill as long as the head, compressed, slightly arched, acute, not more robust than that of many Sylviæ; upper mandible carinated above, its margins acute and entire; lower mandible carinated beneath, acute. Nostrils basal, lateral, linear-elliptical, half-closed by a membrane. Head and neck of ordinary size. Body rather slender. Feet short and small; tarsus scutellate before and behind; toes two before, separated; two behind, one of which is versatile; the sole flat; claws slender, compressed, arched.

Plumage blended, soft, slightly glossed. Wings long, the first quill short, the third longest. Tail long, graduated, of ten feathers, which are rather narrow and rounded.

Upper mandible brownish-black; lower bluish. Iris hazel. A bare space of a deep scarlet tint around the eye. Feet dull blue. The general colour of the upper parts is light greenish-brown. Cheeks and forehead tinged with greyish-blue. Tail-feathers, excepting the two middle ones, tipped with white. Under parts brownish-white.

Length 11½ inches, extent of wings 15; beak along the ridge ⅝, along the gap 1¼.

Adult Female.

The female differs very little in external appearance from the male, and is nearly of the same dimensions.

A male preserved in spirits measures to end of tail 12 inches, to end of wings 8½, to end of claws 8; extent of wings 15½; wing from flexure 5½; tail 5¼.

The interior of the mouth presents the same appearances as that of the other species, its width 7 twelfths; the tongue 8 twelfths long, of the same form, but black, as is the whole of the mouth. The œsophagus is 6 twelfths in width at the commencement, and gradually contracts to 3 twelfths; but the proventriculus is 6 twelfths in breadth; its glands smaller than in the other species, and forming a belt ½ inch in breadth. The stomach is similar to that of the Yellow-billed Cuckoo; its tendons about 4 twelfths in length and 3 twelfths in breadth; the inner surface soft, with faint longitudinal rugæ, although quite smooth. Pylorus small, with a semilunar margin. The lobes of the liver are very unequal, the left 5 twelfths, the right 10 twelfths in length. The contents of the stomach are remains of insects, with a few short hairs scattered here and there over its internal surface. The intestine is 11¼ inches long, very slender, its width from 2½ twelfths to 1½ twelfths; the cloaca oblong, 5 twelfths in width; the cœca, fig. 2. p. 522, 1 inch 1 twelfth long, their greatest width about the middle 2½ twelfths, narrowed toward the extremity. The trachea is 2 inches 2 twelfths long, moderately flattened, from 1½ twelfths to 1 twelfth in breadth; its rings 58, with 5 additional dimidiate rings. Bronchi of about 10 half rings. The muscles as in the other species.

The Great Magnolia.

Magnolia grandiflora, *Willd.*, Sp. Pl., vol. ii. p. 1255.

Mangrove Cuckoo?

Male.

Seven years apple.

Drawn from Nature by J.J.Audubon,F.R.S.F.L.S.

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THE MANGROVE CUCKOO.

COCCYZUS SENICULUS, *Lath.*

PLATE CCLXXVII.—MALE.

A few days after my arrival at Key West in the Floridas, early in the month of May, Major GLASSEL of the United States Army presented me with a specimen of this bird, which had been killed by one of the soldiers belonging to the garrison. I had already observed many Cuckoos in the course of my walks through the tangled woods of that curious island; but as they seemed to be our Common Yellow-billed species, I passed them without paying much attention to them. The moment this specimen was presented to me, however, I knew that it was a species unknown to me, and thought, as I have on many occasions had reason to do, how vigilant the student of nature ought to be, when placed in a country previously unvisited by him. The bird was immediately drawn, and I afterwards shot several others, all precisely corresponding with it.

The habits of the Mangrove Cuckoo I found to be much the same as those of our two other well known species. Like them it is fond of sucking the eggs of all kinds of birds in the absence of their owners, and also feeds on fruits and various species of insects. It is, however, more vigilant and shy, and does not extend its migrations northward, beyond the eastern capes of the Floridas; appearing, indeed, to confine itself mostly to the islets covered with mangroves, among the sombre foliage of which trees it usually builds its nest and rears its young. It retires southward in the beginning of September, according to the accounts of it which I received in the country.

The nest is slightly constructed of dry twigs, and is almost flat, nearly resembling that of the Yellow-billed Cuckoo, which I have already described. The eggs are of the same number and form as those of that species, but somewhat larger. It raises two broods in the season, and feeds its young on insects until they are able to go abroad.

The White-headed Pigeon is frequently robbed of its eggs by this plunderer, and it is alleged by the fishermen and wreckers that it destroys the squabs when yet very young, but I saw no instance of this barbarous propensity. One which had been caught in its nest, and which I saw placed in a cage, refused all kinds of food and soon died. This, however, proved to me the great affection which they have towards their eggs. Their flight

is much like that of the other species described by me, perhaps only more rapid and elevated when they are proceeding to some distant place.

MANGROVE CUCKOO, *Coccyzus Seniculus*, Nutt. Man., vol. i. p. 558.
MANGROVE CUCKOO, *Coccyzus Seniculus*, Aud. Orn. Biog., vol. ii. p. 390.

Male, 12, 15.
Florida Keys. Common. Migratory.
Adult Male.

Bill as long as the head, broad at the base, compressed, slightly arched, acute; upper mandible carinated above, its margins acute and entire; lower mandible carinated beneath, acute. Nostrils basal, lateral, linear-elliptical, half-closed by a membrane. Feet short; tarsus covered with a few large scutella, which extend around it and meet behind; toes two before, separated; two behind, one of which is versatile; their under surface broad and flat; claws slender, compressed, arched.

Plumage soft, blended, slightly glossed. Wings long, the first quill short, the third and fourth longest and equal; primaries tapering, secondaries broad and rounded. Tail very long, graduated, of ten feathers, which are broad and rounded.

Upper mandible brownish-black, lower mandible yellow at the base, blackish on the margin and at the end. Iris hazel. Feet greyish-blue. The general colour of the upper parts, including the wing-coverts and two middle tail-feathers, is light greenish-brown, the head tinged with grey; primary quills umber-brown; tail feathers, excepting the two middle ones, brownish-black, tipped with white, the outer more largely. The lower surface brownish-orange.

Length 12 inches, extent of wings 15; bill along the ridge 1, along the edge $1\frac{1}{4}$; tarsus $1\frac{1}{12}$; longest toe $1\frac{1}{4}$.

The female resembles the male, but is somewhat paler, especially on the lower surface, which is tinged with grey.

THE SEVEN YEARS APPLE, *Catesby*, plate 59.

The plant, on a twig of which I have represented the Mangrove Cuckoo, is found on all the Florida Keys, and at times is seen growing in large patches on the mud flats that exist between the outer islets and the mainland. The leaves are thick, glossy above, furred, and of a dull brown colour beneath.

FAMILY XXVIII.—PSITTACINÆ. PARROTS.

Bill short, bulging, very strong, deeper than broad, convex above and below; upper mandible cerate at the base, its outline decurved, the sides convex, the edges sharp, with an angular process, the tip trigonal, decurved, elongated, acute; lower mandible with the angle short and wide, the tip thin-edged, rounded or abrupt. Nostrils basal, round, open, in the cere. Head very large; neck of moderate length; body compact. Feet short and robust; tarsus short, scaly; toes stout, the outer directed backwards, the third and fourth coherent at the base. Claws stout, curved, acute. Plumage generally blended, but firm. Wings and tail various. Tongue short, fleshy, rounded, or emarginate; œsophagus wide, with a large crop; stomach small, muscular; intestine of moderate length; cœca small; cloaca globular.

Genus I.—CENTURUS, *Kuhl.* PARAKEET.

Bill short, very strong, bulging; upper mandible with the dorsal line decurved, the sides convex, the edges ascending at the base, then direct, with a deep notch, the tip decurved, acute; lower mandible very deep at the base, with the dorsal line convex and ascending, the tip sharp-edged and truncate. The nostrils basal, round. Feet short, stout; tarsus very short; toes of moderate length, stout; claws strong, curved, acute. Plumage blended, compact on the wings, which are long and pointed, with the second quill longest. Tail long, cuneate.

THE CAROLINA PARROT.

CENTURUS CAROLINENSIS. *Linn.*

PLATE CCLXXVIII.—MALE, FEMALE, AND YOUNG.

Doubtless, kind reader, you will say, while looking at the figures of Parakeets represented in the plate, that I spared not my labour. I never do, so anxious am I to promote your pleasure.

These birds are represented feeding on the plant commonly called the *Cockle-bur*. It is found much too plentifully in every State west of the Alleghanies, and in still greater profusion as you advance towards the Southern Districts. It grows in every field where the soil is good. The low alluvial lands along the Ohio and Mississippi are all supplied with it. Its growth is so measured that it ripens after the crops of grain are usually secured, and in some rich old fields it grows so exceedingly close, that to make one's way through the patches of it, at this late period, is no pleasant task. The burs stick so thickly to the clothes, as to prevent a person from walking with any kind of ease. The wool of sheep is also much injured by them; the tails and manes of horses are converted into such tangled masses, that the hair has to be cut close off, by which the natural beauty of these valuable animals is impaired. To this day, no useful property has been discovered in the cockle-bur, although in time it may prove as valuable either in medicine or chemistry as many other plants that had long been considered of no importance.

Well, reader, you have before you one of these plants, on the seeds of which the Parrot feeds. It alights upon it, plucks the bur from the stem with its bill, takes it from the latter with one foot, in which it turns it over until the joint is properly placed to meet the attacks of the bill, when it bursts it open, takes out the fruit, and allows the shell to drop. In this manner, a flock of these birds, having discovered a field ever so well filled with these plants, will eat or pluck off all their seeds, returning to the place day after day until hardly any are left. The plant might thus be extirpated, but it so happens that it is reproduced from the ground, being perennial, and our farmers have too much to do in securing their crops, to attend to the pulling up the cockle-burs by the roots, the only effectual way of getting rid of them.

The Parrot does not satisfy himself with cockle-burs, but eats or destroys

Carolina Parrot or Parrakeet

1. 2. Males 3. Female. 4. Young.

Cockle bur.

Drawn from Nature by J.J.Audubon,F.R.S.F.L.S. Lith.d Printed & Col.d by J. T. Bowen, Philad.a

almost every kind of fruit indiscriminately, and on this account is always an unwelcome visiter to the planter, the farmer, or the gardener. The stacks of grain put up in the field are resorted to by flocks of these birds, which frequently cover them so entirely, that they present to the eye the same effect as if a brilliantly coloured carpet had been thrown over them. They cling around the whole stack, pull out the straws, and destroy twice as much of the grain as would suffice to satisfy their hunger. They assail the pear and apple-trees, when the fruit is yet very small and far from being ripe, and this merely for the sake of the seeds. As on the stalks of corn, they alight on the apple-trees of our orchards, or the pear-trees in the gardens, in great numbers; and, as if through mere mischief, pluck off the fruits, open them up to the core, and, disappointed at the sight of the seeds, which are yet soft and of a milky consistence, drop the apple or pear, and pluck another, passing from branch to branch, until the trees which were before so promising, are left completely stripped, like the ship water-logged and abandoned by its crew, floating on the yet agitated waves, after the tempest has ceased. They visit the mulberries, pecan-nuts, grapes, and even the seeds of the dog-wood, before they are ripe, and on all commit similar depredations. The maize alone never attracts their notice.

Do not imagine, reader, that all these outrages are borne without severe retaliation on the part of the planters. So far from this, the Parakeets are destroyed in great numbers, for whilst busily engaged in plucking off the fruits or tearing the grain from the stacks, the husbandman approaches them with perfect ease, and commits great slaughter among them. All the survivors rise, shriek, fly round about for a few minutes, and again alight on the very place of most imminent danger. The gun is kept at work; eight or ten, or even twenty, are killed at every discharge. The living birds, as if conscious of the death of their companions, sweep over their bodies, screaming as loud as ever, but still return to the stack to be shot at, until so few remain alive, that the farmer does not consider it worth his while to spend more of his ammunition. I have seen several hundreds destroyed in this manner in the course of a few hours, and have procured a basketful of these birds at a few shots, in order to make choice of good specimens for drawing the figures by which this species is represented in the plate now under your consideration.

The flight of the Parakeet is rapid, straight, and continued through the forests, or over fields and rivers, and is accompanied by inclinations of the body which enable the observer to see alternately their upper and under parts. They deviate from a direct course only when impediments occur, such as the trunks of trees or houses, in which case they glance aside in a very graceful manner, merely as much as may be necessary. A general cry

is kept up by the party, and it is seldom that one of these birds is on wing for ever so short a space without uttering its cry. On reaching a spot which affords a supply of food, instead of alighting at once, as many other birds do, the Parakeets take a good survey of the neighbourhood, passing over it in circles of great extent, first above the trees, and then gradually lowering until they almost touch the ground, when suddenly re-ascending, they all settle on the tree that bears the fruit of which they are in quest, or on one close to the field in which they expect to regale themselves.

They are quite at ease on trees or any kind of plant, moving sidewise, climbing or hanging in every imaginable posture, assisting themselves very dexterously in all their motions with their bills. They usually alight extremely close together. I have seen branches of trees as completely covered by them as they could possibly be. If approached before they begin their plundering, they appear shy and distrustful, and often at a single cry from one of them, the whole take wing, and probably may not return to the same place that day. Should a person shoot at them, as they go, and wound an individual, its cries are sufficient to bring back the whole flock, when the sportsman may kill as many as he pleases. If the bird falls dead, they make a short round and then fly off.

On the ground these birds walk slowly and awkwardly, as if their tail incommoded them. They do not even attempt to run off when approached by the sportsman, should he come upon them unawares; but when he is seen at a distance, they lose no time in trying to hide, or in scrambling up the trunk of the nearest tree, in doing which they are greatly aided by their bill.

Their roosting-place is in hollow trees, and the holes excavated by the larger species of woodpeckers, as far as these can be filled by them. At dusk, a flock of Parakeets may be seen alighting against the trunk of a large sycamore or any other tree, when a considerable excavation exists within it. Immediately below the entrance the birds all cling to the bark, and crawl into the hole to pass the night. When such a hole does not prove sufficient to hold the whole flock, those around the entrance hook themselves on by their claws, and the tip of the upper mandible, and look as if hanging by the bill. I have frequently seen them in such positions by means of a glass, and am satisfied that the bill is not the only support used in such cases.

When wounded and laid hold of, the Parakeet opens its bill, turns its head to seize and bite, and, if it succeed, is capable of inflicting a severe wound. It is easily tamed by being frequently immersed in water, and eats as soon as it is placed in confinement. Nature seems to have implanted in these birds a propensity to destroy, in consequence of which they cut to atoms pieces of wood, books, and, in short, everything that comes in their

way. They are incapable of articulating words, however much care and attention may be bestowed upon their education; and their screams are so disagreeable as to render them at best very indifferent companions. The woods are the habitation best fitted for them, and there the richness of their plumage, their beautiful mode of flight, and even their screams, afford welcome intimation that our darkest forests and most sequestered swamps are not destitute of charms.

They are fond of sand in a surprising degree, and on that account are frequently seen to alight in flocks along the gravelly banks about the creeks and rivers, or in the ravines of old fields in the plantations, when they scratch with bill and claws, flutter and roll themselves in the sand, and pick up and swallow a certain quantity of it. For the same purpose, they also enter the holes dug by our Kingfisher. They are fond of saline earth, for which they visit the different *licks* interspersed in our woods.

Our Parakeets are very rapidly diminishing in number; and in some districts, where twenty-five years ago they were plentiful, scarcely any are now to be seen. At that period, they could be procured as far up the tributary waters of the Ohio as the Great Kenhawa, the Scioto, the heads of Miami, the mouth of the Manimee at its junction with Lake Erie, on the Illinois river, and sometimes as far north-east as Lake Ontario, and along the eastern districts as far as the boundary line between Virginia and Maryland. At the present day, very few are to be found higher than Cincinnati, nor is it until you reach the mouth of the Ohio that Parakeets are met with in considerable numbers. I should think that along the Mississippi there is not now half the number that existed fifteen years ago.

Their flesh is tolerable food, when they are young, on which account many of them are shot. The skin of their body is usually much covered with the mealy substances detached from the roots of the feathers. The head especially is infested by numerous minute insects, all of which shift from the skin to the surface of the plumage, immediately after the bird's death. Their nest, or the place in which they deposit their eggs, is simply the bottom of such cavities in trees as those to which they usually retire at night. Many females deposit their eggs together. I am of opinion that the number of eggs which each individual lays is two, although I have not been able absolutely to assure myself of this. They are nearly round, and of a light greenish-white. The young are at first covered with soft down, such as is seen on young Owls. During the first season, the whole plumage is green; but towards autumn a frontlet of carmine appears. Two years, however, are passed before the male or female are in full plumage. The only material differences which the sexes present externally are, that the male is rather larger, with more brilliant plumage.

PSITTACUS CAROLINENSIS, Linn. Syst. Nat., vol. i. p. 141.
CAROLINA PARROT, *Psittacus carolinensis*, Wils. Amer. Orn., vol. iii. p. 89.
PSITTACUS CAROLINENSIS, Bonap. Syn., p. 41.
CAROLINA PARROT, *Psittacus carolinensis*, Nutt. Man., vol. i. p. 545.
CAROLINA PARROT, *Psittacus carolinensis*, Aud. Orn. Biog., vol. i. p. 135.

Male, 14, 22.

South Carolina, Georgia, Florida, Alabama, Louisiana, and up the Mississippi to Kentucky. Abundant. Resident.

Adult Male.

Bill short, bulging, very strong and hard, deeper than broad, convex above and below, with a cere at the base; upper mandible curved from the base, convex on the sides, the margin overlapping, with an angular process, the tip trigonal, acute, declinate, much exceeding the under mandible, which is very short, broadly convex on the back, truncate at the extremity. Nostrils basal, round, open, placed in the cere. Head very large. Neck robust. Body rather elongated. Feet short and robust; tarsus scaly all round; toes scutellate above, flat beneath, two behind and two before, the latter united at the base; claws curved, acute.

Plumage compact and imbricated on the back, blended on the head, neck, and under parts. Orbital space bare. Wings long, second and third quills longest. Tail long, wedge-shaped, of twelve, narrow, tapering feathers.

Bill white. Iris hazel. Bare orbital space whitish. Feet pale flesh-colour, claws dusky. Fore part of the head and the cheeks bright scarlet, that colour extending over and behind the eye, the rest of the head and the neck pure bright yellow; the edge of the wing bright yellow, spotted with orange. The general colour of the other parts is emerald-green, with light blue reflections, lighter beneath. Primary coverts deep bluish-green; secondary coverts greenish-yellow. Quills bluish-green on the outer web, brownish-red on the inner, the primaries bright yellow at the base of the outer web. Two middle tail-feathers deep green, the rest of the same colour externally, their inner webs brownish-red. Tibial feathers yellow, the lowest deep orange.

Length 14 inches, extent of wings 22; bill along the ridge $1_{\frac{1}{12}}$, gap, measured from the tip of the lower mandible, $\frac{1}{2}$; tarsus ^{5}, middle toe $1\frac{1}{4}$.

Adult Female.

The female is similar to the male in colour. The upper figure represents a kind of occasional variety, with fourteen tail-feathers. The specimen from which the drawing was taken was shot at Bayou Sara, in Louisiana.

Young Bird.

The young bird is known by the comparative shortness of the tail, and the uniform green colour of the head.

The Cockle-bur.

Xanthium Strumarium, *Willd.*, Sp. Pl., vol. iv. p. 373. *Pursh*, Flor. Amer. vol. ii p. 581. *Smith*, Engl. Fl., vol. iv. p. 136.—Monœcia Pentandria, *Linn.*—Corymbiferæ, *Juss.*

Root fibrous; stem solitary, erect, branched, from three to six feet high, furrowed, downy; leaves on long petioles, cordate, lobed, serrate, scabrous, three-nerved at the base; clusters axillar, of four or five fertile, and one or two barren flowers, which are green; nuts densely armed, and furnished with two beaks.

FAMILY XXIX.—COLUMBINÆ. PIGEONS.

Bill short, soft for half its length, horny toward the end; upper mandible with a tumid fleshy covering at the base, its dorsal line straight, toward the end convex and deflected, the tip narrow, but obtuse; lower mandible at its base wider than the upper, its sides elastic and slender, the angle long and obtuse, the dorsal line short and convex, the tip obtuse. Nostrils linear in the lower and fore part of the nasal membrane. Head small, oblong; neck of moderate length; body rather full. Feet short; tarsus partially feathered, scutellate, or scaly; toes four, on the same level, broad beneath, marginate; the first short, the lateral nearly equal, all scutellate above. Claws moderate, arched, compressed, rather blunt. Plumage generally compact, the feathers with thick spongy shaft, and destitute of plumule. Wings and tail various. Tongue rather broad at the base, toward the end narrow, horny, induplicate, pointed; œsophagus very wide, enlarged into an enormous crop; stomach a very large and strong gizzard, placed obliquely, its lateral muscles exceedingly thick, the lower prominent, the tendons very large, the epithelium dense, with longitudinal broad rugæ, and two opposite grinding surfaces; intestine long, of moderate width; cœca very small; cloaca oblong. Trachea simple, flattened, with a single pair of inferior laryngeal muscles. Nest flat, rudely constructed. Eggs two, elliptical, white.

Genus I.—COLUMBA, *Linn.* DOVE.

Bill straight, rather short, slender, compressed; upper mandible with the dorsal line straight at the base, convex toward the end, the nostrils linear, oblique, covered with a fleshy bare membrane, the edges sharp toward the end, with a distinct notch, the tip narrow, sharp-edged, rounded; lower mandible with the angle long and pointed, the sides erect, the base sloping outwards toward the end, the edges sharp, the tip narrow, but blunt. Head small, oblong, compressed; neck of moderate length; body full. Feet short, strong; tarsus very short, roundish, with a single row of scutella above, and two anterior rows of large hexagonal scales; toes beneath rather slender, broad and flat beneath, marginate, with large scutella; hind toe smallest, lateral about equal. Claws of moderate size, arched, compressed, acute. Plumage rather compact above, blended beneath; wings long, pointed, the second and third quills longest. Tail of moderate length, rounded, of twelve broad rounded feathers.

BAND-TAILED DOVE, OR PIGEON.

Columba fasciata, *Say.*

PLATE CCLXXIX.—Male and Female.

In the course of Colonel Long's expedition to the Rocky Mountains, a single specimen of this large and handsome Pigeon was procured. This individual was afterwards figured in the continuation of Wilson's American Ornithology. Many specimens, however, have more recently been obtained by Mr. Townsend, from whom I have procured three pairs of adult and some young birds. Comparing them with the figure above alluded to, I should consider it as having been taken from a young male. In my plate

Band-tailed Dove or Pigeon.

1. Male. 2. Female.

Cornus Nuttalli.

Drawn from Nature by J. J. Audubon, F.R.S.F.L.S.

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are represented two adult birds, placed on the branch of a superb species of *dogwood*, discovered by my learned friend THOMAS NUTTALL, Esq., when on his march towards the shores of the Pacific Ocean, and which I have graced with his name! The beautiful drawing of this branch was executed by Miss MARTIN, the amiable and accomplished sister of my friend Dr. BACHMAN. Seeds of this new species of *Cornus* were sent by me to Lord RAVENSWORTH, and have germinated, so that this beautiful production of the rich valley of the Columbia river may now be seen in the vicinity of London; and in the grounds of the nobleman just mentioned, near Newcastle-upon-Tyne. Mr. TOWNSEND'S notice respecting the bird here spoken of is as follows :—

"The Band-tailed Pigeon is called by the Chinook Indians '*akoigh homin.*' It ranges from the eastern spurs of the Rocky Mountains across to the Columbia river, where it is abundant. It arrived in 1836 in very great numbers, on the 17th of April, and continued in large flocks while breeding. Their breeding places are on the banks of the river. The eggs are placed on the ground, under small bushes, without a nest, where numbers congregate together. The eggs are two, of a yellowish white colour, inclining to bluish-white, with minute white spots at the great end. These pigeons feed upon the berries of the black elder and the buds of the balsam poplar. When sitting in the trees, they huddle very close together in the manner of the Carolina Parrot, and many may be killed at a single discharge of the fowling-piece. The flesh is tender and juicy, and therefore fine eating."

Mr. NUTTALL has favoured me with an equally interesting notice. "This large and fine Pigeon, always moving about in flocks, keeps in Oregon only in the thick forests of the Columbia and the Wahlamet, and during the summer is more particularly abundant in the alluvial groves of the latter river, where throughout that season we constantly heard their cooing, or witnessed the swarming flocks feeding on the berries of the elder tree, those of the Great Cornel (*Cornus Nuttalli*), or, before the ripening of berries, on the seed-germs or the young pods of the balsam poplar. The call of this species is somewhat similar to that of the Carolina Dove, but is readily distinguishable, sounding like a double suppressed syllable, as *h 'koo, h 'koo, h 'koo, h 'koo*, uttered at the usual intervals, and repeated an hour or two at a time, chiefly in the morning and evening. They are said to breed on the ground, or in the low bushes, but I did not find the nest, although I saw the birds feeding around every day near Watpatoo Island. During the whole of this time they keep in flocks, either in the poplars or elder bushes, and on being started, sweep about like flocks of domestic pigeons, soon returning to their fare, when they feed in silence, keeping a strict watch for intruders. They remain on the lower part of the Columbia nearly the whole year, late

in the season (October and November) feeding mostly on the berries of the *tree cornel*, but still they seem to migrate some distance to the south, as the severity of the winter approaches."

COLUMBA FASCIATA, Say, Long's Exped., vol. ii. p. 10.
COLUMBA FASCIATA, Bonap. Syn., p. 119.
BAND-TAILED PIGEON, *Columba fasciata*, Bonap. Amer. Orn., vol. i. p. 77.
BAND-TAILED PIGEON, Nutt. Man., vol. i. p. 624.
BAND-TAILED PIGEON, *Columba fasciata*, Aud. Orn., Biog., vol. iv. p. 479.

Male, 16, wing, 9. Female, 15½.

From the eastern spurs of the Rocky Mountains, and across them to the Columbia river. Common. Migratory.

Adult Male.

Bill straight, rather short, slender, compressed; upper mandible with a tumid fleshy covering at the base, where it is straight in its dorsal outline, convex towards the end, with a sharp-edged, declinate, rather obtuse tip; lower mandible with the angle long and pointed, the sides erect at the base, sloping outwards toward the end, the edges sharp, the tip narrow but blunt. Nostrils medial, oblique, linear.

Head small, oblong, compressed; neck of moderate length; body full. Feet short, strong; tarsus very short, rounded, with two anterior rows of large hexagonal scales; the hind part fleshy, with very small scales; toes broad and flat beneath, marginate, with large scutella above; the hind toe smallest, the lateral nearly equal, the middle toe much longer. Claws of moderate size, arched, compressed, grooved beneath, rather acute.

Plumage rather compact above, blended beneath, on the hind neck strong, with metallic gloss. Wings long, the second quill longest, the third only a twelfth of an inch shorter, the first six-twelfths shorter, and a little longer than the fourth, the rest rather quickly graduated; secondaries of moderate breadth and rounded. First quill with the outer web narrower at the base than toward the end, the second and third quills with their outer webs having a slight sinus and attenuated toward the end. Tail of moderate length, rounded, of twelve broad abruptly rounded feathers, of which the lateral is half an inch shorter than the longest.

Bill yellow, with the tips black. Feet yellow, claws greyish-black. Bare space around the eyes carmine. The head, fore neck, and breast are of a light reddish-purple or wine-colour, which on the abdomen and lower tail-coverts fades into whitish; a narrow half-ring of white on the hind neck, the lower part of which is of a metallic brownish-green tint. The upper parts are greyish blue, darker, and tinged with brown on the fore part of the back and scapulars; sides of the body and rump greyish-blue. Alula, primary

White-headed Dove, or Pigeon.

1. Male. 2. Female.

Cordia sebestina

Drawn from Nature by J. J. Audubon, F.R.S.F.L.S.

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coverts, primary quills, and outer secondaries brownish-black, very narrowly margined with brownish-white. Tail greyish-blue at the base, much paler and tinged with yellow toward the end, these colours being separated at the distance of two inches from the tip by a band of black.

Length to end of tail 16 inches, to end of wings 13¾; wing from flexure 8; tail 6¼; bill along the ridge $\frac{10}{12}$, along the edge of lower mandible $1\frac{1}{12}$; tarsus $1\frac{1}{12}$; hind toe $\frac{8}{12}$, its claw $\frac{5}{12}$; middle toe $1\frac{4}{12}$, its claw $\frac{7}{12}$.

Adult Female.

The female differs from the male only in having the tints a little duller, and on the upper parts somewhat darker, with the black band on the tail less decided, the middle feathers being but faintly marked with it.

Length to end of tail 15½ inches.

Nuttall's Dog-wood.

Cornus Nuttalli, *Audubon.*

This very beautiful tree, which was discovered by Mr. Nuttall on the Columbia river, attains a height of fifty feet or more, and is characterized by its smooth reddish-brown bark; large, ovate, acuminate leaves, and conspicuous flowers, with six obovate, acute, involucral bracteas, which are rose-coloured at the base, white towards the end, veined and reticulated with light purple. The berries are oblong, and of a bright carmine.

WHITE-HEADED DOVE, OR PIGEON.

Columba leucocephala, *Linn.*

PLATE CCLXXX.—Male and Female.

The White-headed Pigeon arrives on the Southern Keys of the Floridas, from the Island of Cuba, about the 20th of April, sometimes not until the 1st of May, for the purpose of residing there for a season, and rearing its young. On the 30th of April, I shot several immediately after their arrival from across the Gulf Stream. I saw them as they approached the shore,

skimming along the surface of the waters, flying with great rapidity, much in the manner of the common house species, but not near each other like the Passenger Pigeon. On nearing the land, they rosé to the height of about a hundred yards, surveyed the country in large circles, then with less velocity gradually descended, and alighted in the thickest parts of the mangroves and other low trees. None of them could be easily seen in those dark retreats, and we were obliged to force them out, in order to shoot them, which we did at this time on the wing.

In creeping among the bushes to obtain a view of them whilst alighted, I observed that the more I advanced, the more they retired from me. This they did by alighting on the ground from the trees, among which they could not well make way on wing, although they could get on with much ease below, running off and hiding at every convenient spot that occurred. These manœuvres lasted only a few days, after which I could see them perched on the tops of the trees, giving a preference perhaps to dry branches, but not a marked one, as some other species are wont to do.

They are at all times extremely shy and wary, more so in fact than any species with which I am acquainted. The sight of a man is to them insupportable, perhaps on account of the continued war waged against them, their flesh being juicy, well flavoured, and generally tender, even in old birds. Never could I get near one of them so long as it observed me. Indeed, the moment they perceive a man, off they go, starting swiftly with a few smart raps of the wings, and realighting in a close covert for awhile, or frequently flying to another key, from which they are sure to return to that left by them, should you pursue them. It is thus a most toilsome task to procure specimens of these birds.

Their shyness is but partially given up even during their love season, or while sitting on their eggs, for the moment they see you they get off slyly from the nest, walk on the branches for some distance, and take to wing without any noise, flying low along the edge of the mangroves, into which they throw themselves as soon as a place of safety offers itself, seldom on such occasions flying off to other keys. Their return to the nest is not immediate, the heat of these latitudes not requiring the same care in incubation as the comparative cold of more northern regions. I have waited their return sometimes as much as half an hour, without success.

By the first of May, the young squabs are nearly able to fly, and it is at this period that the greatest havoc is made among them. The fishermen and the wreckers visit the keys principally resorted to by this species, rifle all the nests they can find, and sometimes also shoot the old birds.

The key on which I first saw this bird, lies about twenty-five miles south of Indian Key, and is named Bahia-honda Duck Key. The farther south

we proceeded the more we saw, until we reached the low, sandy, sterile keys, called the Tortugas, on none of which did I see a Pigeon of any kind. During my visit to the Floridas, our party procured a great number of White-headed Pigeons. They were all either adult or full-plumed birds, having the upper part of the head pure white, with a deep rich brown edging at the lateral parts of the crown. On our return from the Tortugas to Key West, our vessel anchored close to a small key, in a snug harbour protected from the sea winds by several long and narrow islands well known to the navigators of those seas. Captain DAY and myself visited this little key, which was not much more than an acre in extent, the same afternoon. No sooner had we landed, than, to our delight, we saw a great number of White-headed Pigeons rise, fly round the key several times, and all realight upon it. The Captain posted himself at one end of the key, I at the other, while the sailors walked about to raise the birds. In less than two hours we shot thirty-six of them, mostly on the wing. Their attachment to this islet resulted from their having nests with eggs on it. Along with them we found Grakles, Red-winged Starlings, Flycatchers, and a few Zenaida Doves. Having shot most of the Pigeons, examined their nests, collected their eggs, and written memoranda, we proceeded to other keys in search of other species.

The next morning we thought of calling at this little key on our way, and were surprised to find that many new comers had arrived there before us. They were, however, very shy, and we procured only seventeen in all. I felt convinced that this spot was a favourite place of resort to these birds. It being detached from all other keys, furnished with rank herbaceous plants, cactuses, and low shrubs, and guarded by a thick hedge of mangroves, no place could be better adapted for breeding; and, at each visit we paid it, White-headed Pigeons were procured. Allow me here, kind reader, to tell you that the number of that strange species of crabs called *soldiers* was so great, that our game could not be suffered to lie a few minutes on the ground without being either much mangled or carried into their subterranean retreats; so that, with all our care, we were actually deprived by them of several birds which we had shot. These curious crabs, which belong to the genus *Pagurus*, crawl up the trees, and no doubt often destroy the eggs or young of the Pigeons.

The principal difference between Pigeons and Doves, as to their habits, is, according to my observation, that the former generally build their nests close together on the same trees, which the latter never do. For this reason I place the present species among the Doves.

The nest is placed high or low, according to circumstances; but there are never two on the same tree. I have found it on the top shoots of a cactus,

only a few feet from the ground, on the upper branches of a mangrove, or quite low, almost touching the water, and hanging over it. In general the nest resembles that of the *Columba migratoria*, but it is more compact, and better lined. The outer part is composed of small dry twigs, the inner of fibrous roots and grasses. The eggs are two, opaque, white, rather roundish, and as large as those of the domestic Pigeon. From the appearance of the eggs in the ovaria of females having young at the time, I would infer that this species has several broods during each season; and perhaps they may breed in Cuba, after their return from the Florida Keys. None of these birds are found on the mainland, although it is at no great distance.

A rather extraordinary fact relating to the habits of this species, is that many of these birds, which breed in Cuba, or some of the Bahama Islands, come to the Florida Keys for the purpose of procuring food for their young, to which they return several times daily. This is particularly observed at the time when the *sea grape* is fully ripe, or during the month of June. The numbers of these Pigeons that resort to the Keys, attract several species of Hawks during the breeding season, amongst which the Peregrine and the Red-shouldered are conspicuous. On none of the Keys unvisited by this species, did I see a Hawk of any kind.

The White-headed Pigeon exhibits little of the pomposity of the common domestic species, in its amorous moments. The male, however, struts before the female with elegance, and the tones of his voice are quite sufficient to persuade her of the sincerity of his attachment. During calm and clear mornings, when nature appears in all her purity and brightness, the cooing of this pigeon may be heard at a considerable distance, mingling in full concord with the softer tones of the Zenaida Dove. The bird standing almost erect, full-plumed, and proud of his beauty, emits at first a loud *croohoo*, as a prelude, and then proceeds to repeat his *coo-coo-coo*. These sounds are continued during the period of incubation, and are at all times welcome to the ear of the visiter of these remarkable islands. When approached suddenly, it emits a hollow, guttural sound, precisely resembling that of the Common Pigeon on such occasions.

The young birds are at first almost black, but have tufts of a soft buff-coloured down distributed mostly over the head and shoulders. While yet squabs they have no appearance of white on the head, and they take about four months before they acquire their perfect plumage. Smaller size, and a less degree of brilliancy, distinguish the female from the male. About the beginning of October they abound on the Keys, and return to the West India Islands.

I have only to add the following particulars to what I have already detailed of the history of this species. While standing perched in a nearly

upright posture, they have a continued movement of the head, with a frequent jerking upwards of the tail. Their flight may be compared to that of the European Cushat, being very swift and noiseless, after a few hard flaps at starting. In captivity they are easily managed, and readily breed. I saw several of them with my friends Dr. WILSON and Rev. JOHN BACHMAN of Charleston, South Carolina.

The White-headed Pigeon does not occur to the westward of the Florida Keys on the shores of the Gulf of Mexico; at least I have seen none in any portion of all that extensive range of country as far as Galveston Island, in Texas. The eggs of this species measure one inch and two and a half eighths in length, an inch and half an eighth in breadth; although in more than fifty instances I found two eggs in each nest, the Earl of DERBY informs me that in captivity, like *Columba migratoria*, this Pigeon lays only one.

I have placed a pair of these Pigeons on a low, flowering tree, which is rather scarce on the Keys. It is in full bloom during the whole year, and its leaves, I thought, correspond with the colour of the birds, while the brilliant hue of its flowers forms a strong contrast.

COLUMBA LEUCOCEPHALA, Bonap. Syn., p. 119.

WHITE-HEADED PIGEON, *Columba leucocephala*, Bonap. Amer. Orn., vol. ii. p. 15.

WHITE-CROWNED PIGEON, Nutt. Man., vol. i. p. 625.

WHITE-HEADED PIGEON, *Columba leucocephala*, Aud. Orn. Biog., vol. ii. p. 443, vol. v. p. 557.

Male, 14¼, 23½. Female, 14.

Florida Keys. Common during summer only.

Adult Male.

Bill straight, of ordinary length, rather slender, compressed; upper mandible with a tumid fleshy covering at the base, where it is straight in its dorsal outline, convex towards the end, with a sharp-edged, declinate, rather obtuse tip; lower mandible with the sides sloping outwards, the angle near the end, the edges sharp, the tip rounded. Nostrils medial, oblique, linear. Head small and compressed, neck of ordinary length, body full. Feet short, strong; tarsus very short, rounded, with two anterior rows of large hexagonal scales; toes scutellate above, marginate, the hind toe smallest, the two lateral nearly equal, the middle toe much larger; claws of moderate size, compressed, arched, rather acute.

Plumage rather compact above, blended beneath, on the hind neck strong, with metallic gloss. Wings long, the third quill longest, the second almost equal, the first not so long as the fourth, the second, third, fourth, and most of the other primaries situate on the outer web, towards the end; the

secondaries broad and rounded. Tail rather long, even, of twelve broad slightly rounded feathers.

Bill carmine at the base, bluish-white at the end. Iris yellow. Feet carmine; claws greyish-yellow. The general colour is dusky greyish-blue, paler beneath, the quills and tail-feathers darker. The whole upper part of the head is pure white; the upper part of the hind neck rich chocolate-brown, the lower part and sides green, changing to gold-colour, each feather margined externally with deep black.

Length 14¼ inches, extent of wings 23½; bill along the back $\frac{8}{12}$, along the edge $\frac{11}{12}$; tarsus $\frac{1}{12}$, middle-toe and claw $1\frac{11}{12}$.

Adult Female.

The female differs from the male only in having the tints a little duller and lighter.

In a specimen preserved in spirits, the interior of the mouth is similar to that of the Passenger Pigeon; as is the tongue, which is 8 twelfths long, but broader towards the end than in that species. The œsophagus is 5 inches 9 twelfths long; its width at the upper part nearly 1 inch; the crop of the same form and structure as in the species above named, and nearly of the same size. The stomach is 1½ inches in breadth, 1¼ inches in length; its muscles very strong, the left 6 twelfths, the right 7 twelfths thick; the epithelium of horny texture, with two concave grinding surfaces. It contains seeds of fruits. The intestine is 28 inches long; the duodenum is 6 twelfths in breadth; the average width of the rest of the intestine is 3 twelfths. The cœca are 2½ twelfths long, ½ twelfth in width; the cloaca very little dilated, its width about 9 twelfths.

The trachea is 4¼ inches long, from 3 twelfths to 2¼ twelfths in breadth; the rings extremely feeble, unossified on the back part, and 90 in number; the last ring of the same form as in the other species, and the muscles are similar. Bronchi moderate, of about 15 half rings.

The brain in these Pigeons is proportionally much smaller than in any other bird examined, excepting the Goat-suckers and Cuckoos.

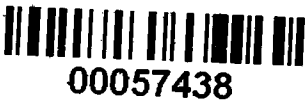
The Rough-leaved Cordia.

Cordia sebestena, *Willd.*—Pentandria Monogynia, *Linn.*—Cordiaceæ, *Juss.*

This plant, on account of its large tubular scarlet flowers, is one of the most beautiful of the West Indian trees. I saw only two individuals at Key West, where, as was supposed, they had been introduced from Cuba. They were about fifteen feet high, the stem having a diameter of only five or six

inches. They were in full bloom in the early part of May, and their broad deep green leaves, and splendid red blossoms, mingled with the variety of plants around me, rendered their appearance delightful. Both trees were private property, and grew in a yard opposite to that of Dr. STROBEL, through whose influence I procured a large bough, from which the drawing was made, with the assistance of Mr. LEHMAN. I was informed that they continued in flower nearly the whole summer.

END OF THE FOURTH VOLUME.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